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EDITORIAL.

EUROPEAN CHRONICLE.

BOIS JEROME, 15th of July, 1915.

ON WOUNDS AGAIN.—In a recent chronicle, I have called the attention of our readers to a subject of actualities, viz.: the treatment of wounds and principally of those, which by their manifestations and modes of development, have received the qualification of gangrenous. The treatment of those severe and dangerous injuries have been the subject in several medical societies, of important communications, most of which have had for their field of observations the many wounded soldiers that are filling the wards of all the hospitals.

Although the various treatments alluded to refer entirely to human patients, they certainly can also find their application, not necessarily in time of war, but during the quietness of a civil practice. On this account I will refer to some of them, selecting those that may answer best the needs of a veterinarian.

1. *On Antigangrenous Serum.*—Doctor Roux, the eminent director of Pasteur Institute in Paris, has made an important communication on a discovery made by Dr. Weinberg.

In the presence of the general failure of most therapeutic agents, Dr. Weinberg has set to work to find, if possible, one which would give more satisfactory results.

Among the many microbes, that are found in gangrenous wounds Weinberg has distinguished one, which he always met with in over fifty gangrenous wounds. He isolated it, made cultures of it and injected it into guinea pigs. These injections were followed by manifestations similar to those found in

wounded individuals suffering with gaseous gangrene and they finally died.

Was the bacillus of that gangrene discovered, asked the reporter of the communication.

A serum to annihilate the action of the bacillus was then looked for and after many trials it is said was found.

Number of guinea pigs were injected with the serum and after with the bacillus. Another series of guinea pigs received the bacillus only. Those last controls died after thirty-six hours, while on the contrary the gangrenous lesions of the others were resorbed and health returned to them.

Again, simultaneously the serum and the virus were injected and the disease did not develop.

Only five hours after an injection of virus the serum was injected, the disease made its appearance but the animals recovered; the serum was injected ten hours after the virus, some animals recovered, others died, but died later than controls which had received the virus only.

Then, thus applied to animals, in the laboratory, the serum has proved itself clearly to possess preventive and curative properties.

Will it prove likewise to man? Trials already made seemed ready to answer in the affirmative.

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2. At one of the sittings of the Societe de Chirurgie, reports the Presse Medicale, two communications on the treatment of wounds were presented.

One from Dr. Morestin on the *Use of Formol in the Treatment of Very Septic Wounds and Those with Gaseous Gangrene*.

The doctor called the attention upon the great benefit that can be obtained by the use of formol, mixed in equal parts with alcohol and glycerine.

It is evident that, in these peculiar cases, of such nature, septic or gangrenous, the first indication is always the free incision and openings of all the centers of infection, but amongst the

external topics that can be applied on these large septic wounds, formol is the one where the action is most energetic. It realizes a true embalming of the tissues, which permits time to come for further interference, such as amputation, which seems to be of immediate necessity.

There is, however, some objections to the use of formol, not because of its toxic properties, but its application on the tissues is very painful and may give rise to mortification. It then becomes dangerous, when it is used freely about large blood vessels. But with all that, those objections can be overcome by care and attentive watching. Then formol becomes a disinfecting agent of first class order.

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3. The second paper is by Dr. Dionis du Sejour, on the *Use of Solutions of Turpentine in Infected and Gangrenous Contused Wounds*: The aqueous solution of oil of turpentine at 15-1000 in infected wounds, where necrotic tissues are abundant is excellent. The action of the turpentine is manifested in the first hours following its application, by an almost deodorization of the wound, by the disparition of the gases and by a rapid lowering of the temperature. In the day that follows, the necrosed tissues, cellular tissue, and muscles, slough out rapidly and there is scarcely any pus on the wound. Tendons and aponeurosis alone are slow to slough and have to be excised with scissors. To the general point of view, a great improvement is observed on the patient.

The use of the turpentine method has proved in the hands of the doctor, its maximum of efficacy in cases of diffused phlegmons, with or without gaseous formation, in true gaseous gangrene, in severe contused wound with great abundance of necrosed tissues. Washing with turpentine have been beneficial in resections, and in wounds complicated with abundance of necrotic elements. They were followed with rapid progress and development of healthy granulations.

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4. *Specific Serum Treatment of Wounds* has been the object of a communication made before the *Academie de Medicine* by Professors Leclainche and Vallee.

Convinced of the nocive action that have the various antiseptic agents upon the cells of repair in wounds, these two veterinarians have searched to realize the physiological disinfection of wounds with a specific polyvalent serum which could act upon the most common aerobic and anaerobic germs.

Some three years ago they made known a method of obtaining with horses, such a serum, and to-day they offer the general report of the success that has been obtained.

The specific polyvalent serum has been used in the dressing of most various accidents: all kinds of traumas, wounds of war, anthrax, abscesses, suppurative arthritis, etc., etc. The most positive and precious results have been obtained, viz.: rapid removal of all pains, also of the suppuration, lowering of the temperature, immediate detersion of the wound, disparition of the swelling, of the lymphangitis—rapid recovery.

It is to its specific qualities, to the antibodies that it contains, that the serum owes its principal useful properties, which are different from those of the normal serum of horses and are comparatively superior to them.

As a preventive, the use of the polyvalent serum is besides, indicated in all surgical interference, specially when a sufficient asepsy is not realized or complications are to be feared on account of the condition of the wound or of the region that is involved.

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5. On continuing my researches amongst medical papers, I find: *Immediate Treatment of War Wounds with Concentrated Solutions of Common Salt* as one deserving attention.

At the *Societe de Chirurgie*, Dr. Abasie stated that leaving aside the fight against microbian agents by antiseptics, which to be effectuous must be used in such doses that they injure tissues more or less, it may be more useful and advantageous on the contrary to stimulate them, and also the vitality of the tissues

surrounding the wound and to put them in better condition to struggle against infections. Concentrated solutions of common salt being hyperstonic, promote an exosmosis which clean the wound, clean the tissues and stimulate diapedesis: they are not toxic for cell elements and are preventive of microbial cultures.

After a free incision of the wounds, a thorough washing removing dead and suspicious tissues, a free cleaning with a salt solution 7% is made, the wound is packed with gauze pads moistened with saline solution at 140 to 280% and a thick dressing is applied. It is necessary on account of the abundant flow of serosity which follows.

This mode of treatment gives rise to the appearance of strong granulating wounds, where infections are jugulated from the start and the tissues surrounding are safe and normal: the general condition is always improved and old wounds are deodorized. First intention cicatrization has also been obtained by this treatment.

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6. *On the Modality of Gaseous Gangrene, the Malignant Gaseous Oedema, and Its Pathogenous Agent.*—Doctor Sacquepee says that the malignant gaseous oedema is essentially characterized to the clinical point of view, by the presence of a hard dark or white swelling, according to the regions, which spreads largely around an infected wound. This oedema is ordinarily accompanied with gaseous infiltration, which is not very extensive. The general condition soon becomes serious, the progress of the disease is rapid and the end is almost always fatal.

The anatomical examination of a region thus affected, reveals in the muscular masses, an *initial gangrenous center*, almost always well defined. The oedematous serosity, which is brownish round the wound, appears colored or again entirely colorless.

Bacteriological examination reveals in those cases the presence of a *special pathogenous agent*, anaerobic bacillus, little motile, sporulated, taking the gram badly coagulating milk

slowly and giving on gelose Veillon, in twenty-four hours, colonies of a special type, which are generally in almond form.

This bacillus is abundant in the gangrenous center, is less so or even often missing in the oedematous serosity, a little distance off.

By intra muscular inoculations to guinea pigs a disease similar to that from which it came was obtained.



On Bacterias Nomenclature.—The numerous authors who, every day, baptize new bacterias (and their number is far from being exhausted), do not perhaps give enough attention to the fact that nomenclature for living beings is submitted to some laws, which, if they are neglected, bring about a perfect synonymy and causes a terrible mixture and confusion. And then, Dr. Henry Coupin in the *Presse Medicale* says that the proof of this is found in the treatises of bacteriology, that have already been published during the last few years, and also in the numerous medical articles, where the said nomenclature receives the most wretched treatment, notwithstanding the fact that it was to put some order in the classification, that it was made.

Bacterias being vegetals, ought to be classified as the commonest and the rarest of plants are. And therefore it is truly frightful for a naturalist to see organisms called for example: *Bacillus Membranaceus Amethystinus Mobilis*, *Bacillus Variabilis Lymphae Vaccinalis*, *Bacillus Paratyphicus*, *B. Coccus Brissoni*, *Micrococcus Tetragenus Mobilis Ventriculi*, etc., without saying anything of the very numerous ones, which are distinguished by Greek letters as the *A Liquefaciens*, the *B. Pyogenus* with the name of the authors following as a fashion.

For those, who in future, would wish not to complicate the denomination of bacterias, it may be good to indicate the rules that ought to be followed which are very simple.

I. The names must be written in Latin: one must avoid to speak of the *Micrococcus of the progressive necrosis of the connective tissue of mouse*, of the *Bacillus of Park-Williams*, of the

Bacillus of the gangrenous septicemia of frogs, etc.: it is better to at once name in Latin the new supposed specie: if it is found bad, it will disappear of itself at once or in one day: without being left dragging for years with a number of other names.

2. Each bacteria must have a gender and a specie-name. Clear meaning, expressions are necessary so as to not confuse bacteriology: as *Coccobacillus*, *Enterococcus*, *Azobacter*, etc.

3. Unless there is absolute impossibility two or three names for the specie must not be used as it rather mixes things, speaking of the *Bacillus Septicemiae Mucogenoe Hominis* or of the *Bacillus Variabilis Lymphae Vaccinalis* and it is more agreeable to speak of the *Bacillus Ruber* or the *Bacillus Kiliensis*. At any rate, if one has to use two names, which is the maximum to be clear, one must see that rules of grammar should be observed and that nouns and adjectives should accord.

4. If the word that designs the specie is an adjective it must be written with a minuscule and if it is a substantive with a majuscule. And then it is as wrong to write *Bacillus Subtilis*, *Bacillus gallinarum*, *Bacillus scarlatinac*, *Bacillus Spinosus*, but write *Bacillus subtilis* *Bacillus Gallinarum*, *Bacillus Scarlatinae*, *Bacillus spinosus*, etc.

5. The name of the specie must be followed by the one cf the author who gave the name first, either in whole or abridged, but not placed, as frequently done between parenthesis. Not write: *Streptococcus lanceolatus* (Gamelia) nor *Streptococcus mucosus* (Howard and Perkins), but write without the parenthesis: *Streptococcus lanccolatus Gramelia* and *Streptococcus mucosus Howard and Perkins*.

6. The parenthesis must, indeed, be kept to indicate the name of the first author who created the name. For instance the Bacteria that Cienkowski has named *Leuconostoc mesenteroides* in 1878 was spoken of as *Leuconostoc mesenteroides*. Cienkowskii. Since that Migula has shown that it was not a Leuconostoc but a streptococcus. And since that this bacteria must be designated as *Streptococcus mesenteroides* (Cienkowski) Migula and not as *Streptococcus mesenteroides Cienkowski* (Migula).

7. Some naturalists give the date of the discovery of the species after the name of the author: *Bacillus perfringens Veillon and Zuber 1898*, *Bacillus reticularis Jordan 1890*. This is a good practice, not followed however.

Attentive following of the above would simplify considerably the nomenclature of bacteria.

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Biographic notes—Lachlan McLean, M.R.C.V.S.—If my memory is not at fault, there appeared in the pages of the REVIEW, many years ago, under the title of Dead and Living, a series of biographic articles concerning a number of the gentlemen connected with veterinary medicine in the United States about those times.

The object of the publication being to form, so to speak, a nucleus for the investigations of those who might wish information as to the standing of the profession in the early days of the recognition of veterinary science in the United States.

A few months ago, a veterinary writer, well known to us all, Prof. D. Arthur Hughes of Chicago, completed in the *Veterinary Journal* of London, that series of years past by the publication of several articles, relating to the members of the Royal College of Veterinary Surgeons, who had been makers of American Veterinary Medicine.

The first series of Prof. Hughes was a grand success and was brought to a close in the *Journal* of May, 1913, by the biography of one, who certainly deserves a first place in the ranks of those amongst English graduates who were pioneers in the building up of American Veterinary Medicine as it is to-day.

I refer to Lachlan McLean, M.R.C.V.S., of Brooklyn.

Although it is not good taste, I believe, to write a biography of one who is still living, as perhaps one does not dare to write anything but compliments or flattery, I may be permitted to record in our American Veterinary Magazine, some biographic facts relating to McLean, "whose long life has been given to professional advance in the United States, as an educator, a

sanitarian and a clinician," as remarked by Prof. Hughes and as I have personally known him to be.

Lachlan McLean was born in Inverness, Scotland, in 1832, "graduated at the Royal Veterinary College, Edinburg, in 1854, and received membership in the Royal College of Veterinary Surgeons. For a time he practised in his native country and was appointed Government Inspector. He emigrated to the United States in 1875, settled in Brooklyn. In 1878 he was appointed Veterinary Inspector of the Brooklyn Board of Health and occupied the chair of Bovine Pathology at the American Veterinary College."

"But, Prof. Hughes remarks truthfully, his more important work, was the detection of contagious bovine pleuro-pneumonia in the United States in 1879. His diagnosis was disputed, but confirmed by the autopsies of many suspected animals."

That was the starting point of the work against the disease, made under the leadership of Prof. James Law and in which McLean took a most active and prominent part. He was fully appreciated as the expert amongst the clinicians of those days.

That prominence that his connection with Pleuro-pneumonia of Bovines pointed him out as a valuable addition to the teaching staff of the American Veterinary College and a professorship of cattle pathology was offered to him. He held it for several years and his energy, his punctuality in the attendance of his duties, his method of teaching which he never failed to illustrate by specimens, were highly appreciated by his students.

His professional relations with the societies to which he belonged, are known by many, either in the United States Veterinary Medical Association or in the local societies. He was always welcome, and no meeting when he was present, ever lacked for want of interesting controversies and discussions.

All of those, McLean carried for years.

Now after a long life of professional exertions he has stopped his active work. He is 83 years old. Well, hearty and with the exception of disablement on one arm from an accident, he still thinks of his dear profession, of the one to the growth of

which he has contributed so much, and we hope that he will enjoy his well deserved rest for a good time to come.

On Roaring of Horses.—There has been so much written on this subject that it would seem as though no more could be said about it. And yet, it is quite certain that the subject is not yet entirely exhausted, if we can judge by the publication recently made of the little book of Professor Doctor H. A. Vermeulen, of the veterinary school of Utrecht.

In this little book of about 100 pages, with a number of illustrations made from microscopic preparations, the doctor presents a new theory of the pathogeny which has for its starting point, the researches made by Walter, to demonstrate the influence of thyroidectomy upon peripheric nerves. Indeed the theory is that the left laryngeal paralysis that follows that of the recurrent nerve is but a nervous affection, under the influence of troubles of the thyroid gland.

Important experiments have been made, the anatomical disposition has been minutiously observed and described by the author and if one bears in mind the frequency of the streptococcic infection, which is sometimes so severe, for the thyroid apparatus, and which is so frequently followed by roaring—all those seem to justify the admission of the ideas advanced by Professor Vermeulen.

In his book the author has presented his subject well, he has recorded and given numerous experimental evidences and everything testifies of the great credit that is due to the author for the interesting conception he has presented in his new theory. A conception which in fact has seemed to be confirmed by the good results that has been obtained in few cases where at the onset of the disease, thyroidean opotherapy was resorted to. These good results were but few it is true, but it is nevertheless of great interest to veterinarians, if after all the great application of Professor William's operation should find itself likely to make room for an opotherapeutic treatment as beneficial and which would be a grand progress for the therapy of roaring.



Bibliographic Items.—I have received: Inoculation Experiment with pure culture of *spirochaeta Hyos* by Doctor Walter Edking and Raymond H. Drake.

Bureau of Animal Industry—Bulletin 652, *The Sheep-Killing Dog*, by V. O. McWhorter.

Bulletin 666—*Foot-and-Mouth Disease*, by Dr. John R. Mohler, V.M.D. Illustrated.

Bulletin 667—*Breaking and Training Colts*, by V. G. Stambauch.

Journal of Agricultural Research—*Ability of Colon Bacilli to Survive Pasteurization*, by S. Henry Ayers and W. T. Johnson, Jr.

Net Energy Value of Feeding Stuffs for Cattle, by Henry Prentiss Armsby and J. August Fries.

A Bacteriological Study of Method for the Disinfection of Hides Infected with Anthrax Spores, by F. W. Tilley.

The United States Livestock Sanitary Board, Circular No. 32—*The Production of Artificial Immunity against Tuberculosis in Cattle*, by S. H. Gilliland, V.M.D., M.D.

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VETERINARY EDUCATION IN NEW YORK STATE.

As the foundation of veterinary education in America was laid in New York State in the establishment of the New York College of Veterinary Surgeons in New York City in 1857, it is but natural that the great Empire State should remain the centre of veterinary education in America. For while two other attempts were made to establish veterinary schools prior to that date—one by Benjamin Rush in Philadelphia in 1806, and another by George Dadd in Boston, in the early fifties—the real foundation of veterinary education in America, by the establishment of a school that endures to the present time—now upward of three-score years—was laid in New York City, when an act of incorporation was signed at Albany, in 1857, establishing the New York College of Veterinary Surgeons. Dr. Alexander

Liautard, who is recognized as the father of veterinary medicine in America, headed that school, and later the American Veterinary College. It was these two schools that made the establishment of the Bureau of Animal Industry in the United States Department of Agriculture a possibility, and it was these two schools that for a great many years supplied that bureau with veterinarians. So that New York State is clearly the foundation centre of veterinary education in America. The history of these pioneer schools is too well known to necessitate repetition, working for many years as competitors, with Dr. Liautard heading the American Veterinary College, and Dr. H. D. Gill heading the New York College of Veterinary Surgeons, as the respective deans, and finally their amalgamation in 1899 and their adoption by the New York University, under the name of the New York-American Veterinary College, the name now best known to later members of the profession, although by the establishment of a state institution at New York University under chapter 676, Laws of 1913, its name became New York State Veterinary College. That the people of the Empire State realized the advantages of a state veterinary school in New York City, was manifested by the fact that such a step received the endorsement of two previous legislative bodies, before it finally became a law by the signature of the governor. No appropriation was asked at the time this amalgamated school was made a state institution, although it offers a free scholarship to one student from each assembly district, and so up to a recent date no marked improvement in its equipment was possible, although it has been thoroughly realized by the faculty that the facilities of the old building, for what work was being done there, were inadequate; though the teaching has been the very best, always. They also realized that the use of the laboratories at the medical school, while offering the student every modern advantage, were too distant from the general class rooms, and have impressed those facts upon the University council. The council also fully appreciates the mutual advantages that will accrue from a closer association than was heretofore possible

between the medical and veterinary schools; and so have arranged with the opening of the 1915-16 session, which begins on September 7, that the veterinary school will be provided with class rooms in the medical school buildings; the building in West 54th street will be vacated, and clinical facilities provided adjacent to the medical buildings for the present term, looking forward to a thoroughly equipped up-to-date veterinary building before the opening of the next session. The faculty is being thoroughly reorganized anticipating changes in the curriculum leading up to a four-year course of nine months each. So that, with a splendidly equipped state veterinary institution at Cornell University, and the old veterinary educational centre of the state promising to become the seat of one of the best equipped veterinary schools in the country, with all the clinical advantages that a big city, with its horse marts and stock yards has to offer, no man who is truly interested in veterinary education can help experiencing a feeling of great satisfaction at the conditions in New York State.

THE RECENT GREAT VETERINARY GATHERING AT ITHACA.

President P. A. Fish called to order the 26th annual meeting of the New York State Veterinary Medical Society at the New York State Veterinary College, at Ithaca, N. Y., at 10 a. m., August 3, 1915.

Prof. T. F. Crane was introduced by the President and welcomed the Society. He touched on the history of the Cornell University with special reference to the Veterinary Department and particularly to the great work done by our distinguished colleague, Prof. Law.

Prof. Crane was followed by the Hon. Thos. Tree, Mayor of Ithaca, who expressed great interest on public health matters, recognizing the close association of veterinary science to human preventive medicine. Dr. Cassius Way pleasantly responded to these addresses of welcome and the formalities being over we listened to a very able address by President Fish.

He reviewed the evolution of veterinary medicine making special mention of the great changes brought about by the use of autos and the increased value of bovine live stock. To those who were not fortunate enough to be present we earnestly recommend that they secure a copy of the proceedings when published and read carefully this address.

Instructions in Selecting and Shipping Tissues for Laboratory Examination, was the caption of Dr. E. M. Pickens' paper. Every word of this paper contained information of value to anyone engaged in any phase of veterinary medicine, but to those engaged in veterinary practice who received their college education in earlier days, it is one of the most valuable synopsis that we have listened to in many a day.

At this point we adjourned for lunch to reassemble again at 2 p. m. The first paper presented was by Drs. Udall and Fitch on *Swamp Fever*. While this disease had had its terrors for the northern and southern veterinarian for many years, our state has been blessed with its absence, but now that it has appeared in some of our northern counties, it behooves every veterinarian to familiarize himself with its symptoms and manifestations with the hope of recognizing it and applying preventive measures at the earliest possible moment should it appear in new localities.

The Viscera of an Ox in Situ—Lantern Slides, was the title of an interesting subject presented by Drs. Hopkins and Sunderland and while the title would bring to one's mind academic work, still this splendid display in the study of regional anatomy was one of the most interesting things that has been presented at our state meetings.

The next paper by Dr. R. W. Gannett, *Keratoma and Its Surgical Treatment*. The essayist described the symptoms in detail, and passed about some very interesting specimens that had been removed by surgical procedure. It is quite evident from the information furnished by Drs. Gannett and Berns, that there is a possibility of error in diagnosis when these cases are met with in practice.

The ridiculous side of the discussion of this paper was no

less interesting than the serious side. Dr. McKinney who is known as the "Improved Scotchman" owing to the fact that his Scotch blood is well mixed with good old Irish, entered into the discussion and differed a little with the essayist, believing that in some cases the condition could be relieved by milder treatment than surgical interference. Prof. Williams took the doctor to task, and doubted the wisdom of his argument when suddenly the Shamrock dominated the Thistle, and Dr. McKinney informed Dr. Williams that the latter evidently did not fully appreciate Dr. McKinney's ability. By the time the house was again in order the discussion was ended and a motion to adjourn was carried.

In the evening we assembled at the New Ithaca Hotel to enjoy together, a pleasing menu. Dr. Fish was toastmaster and spoke of the ties between the Department of Agriculture and the veterinary profession, introducing the Hon. Chas. S. Wilson, Commissioner of Agriculture.

The Commissioner emphasized the importance of veterinary work, as the following extract from his address, which appeared in full in the Ithaca *Times-Press*, will show:

The Commissioner emphasized the importance of veterinary work by referring to the ravages of the foot-and-mouth disease during the last year and by giving the following figures: 5,440 cattle lost at an appraisal value of \$435,088; 498 swine lost at a value of \$6,043.80; 150 sheep at a value of \$980 and 38 goats valued at \$210. This with the property damage makes a total loss of \$449,591.96, of which the state's apportionment was \$224,795.98. In addition to this, miscellaneous expenses relative to the subduing of the ravages of the disease brought the entire cost to the state up to \$300,000.

Concerning the work of the state veterinarians in the department of agriculture he said: "In one year the department has employed about 80 different veterinarians—seven are on regular salary, the others are employed by the day. I am in doubt as to whether the per diem employment of veterinarians is productive of the best results. It is the plan of the department

to employ more veterinarians by the year, requiring such men to devote their entire time to departmental matters and perfect themselves along those lines of work to which they may be assigned.

"The problems on which these veterinarians have been working are, in the main, tuberculosis, glanders, hog cholera, anthrax, blackleg, rabies, infectious abortion, and, more recently, the foot-and-mouth disease.

"It seems to me that our present method of treating bovine tuberculosis is not going to solve the question. While the total percentage of reactors is slowly decreasing, it seems to me that this decrease is not proportionate to the money expended. Is it right for the state to continue each year to spend nearly \$125,000 to reimburse owners for cattle slaughtered? Our present law seems inadequate in that it encourages the killing of desirable animals that are valuable to New York for the purposes of breeding. Under the Bang system, at present, the commissioner of agriculture is permitted to experiment so as to determine the best methods or means for the control, suppression or eradication of the disease, and under that permission the department has adopted a policy which may be outlined as follows:

"First. The cattle may be retained under Bang system by owner, under conditions prescribed by this department.

"Second. The cattle may be turned over to any state, county or other public institution, providing such institution complies with certain regulations as to their care and treatment.

"Third. The owner of such cattle may contract for their sale or transfer to a private individual or corporation, with permission of the department providing the general regulations are complied with."

The commissioner of agriculture working under the present regulations does not believe he can give over free of charge to any individual or corporations animals that have been paid for by the state. "The present plan, therefore, controls the disease by slaughter. I cannot see that we are going to rid ourselves of the tuberculosis by slaughter. On the contrary I realize the value

of individual effort on the individual farm. Is it not possible for us under the present law to help greatly by inducing the owners to keep and segregate desirable stock? In the last four or five years the state has been obliged to pay increasing indemnities for animals slaughtered because of glanders.

"I think from the point of view of a layman that our veterinarians ought to face these facts and, if possible, work out some plan whereby this disease may be controlled sufficiently to insure safety to the public health and for less sums of money than are expended at the present time."

The commissioner then cited several cases in which veterinarians in the employ of the state had, in some cases, adopted crooked measured and had been inefficient. In this respect he asked the aid of the society in assisting to stamp out such practices. "I think your organization should know these facts," he said, "and I believe it behooves you, in the best interests of veterinary work, to eliminate such actions from the veterinary practice."

Dr. V. A. Moore next spoke at length on the educational work at Cornell; declaring new plagues and complex conditions were ever arising making research work one of the important parts of study. He also discussed the proposed amendment to the State Agricultural Law. He said in part:

"There are four points in the proposed bill that are of significance to the veterinarians of the state.

"The first proposition is to establish district veterinarians. The districts are to be bounded by county lines. The district veterinarians are to be in the Veterinary Bureau of the Department of Agriculture under the chief veterinarian, and they are to give their entire time to the work. They are to look after all matters pertaining to the prevention, eradication or control of infectious animal diseases within their districts. They are also to carry out the state meat inspection law. District veterinarians are new in this country but they have been employed with success in Europe. These places will afford opportunity for the right kind of men to do a genuine public service.

"The second provision is that there shall be a physical exami-

nation of all dairy cattle once a year or as often as necessary and the appropriation permits. This will afford opportunity for veterinarians to demonstrate their value in the conservative method of eradicating bovine tuberculosis. Many veterinarians are accused of wrongdoing because of cattle reacting after they have passed a test for tuberculosis before shipping. When the action of tuberculin is better understood many of these charges will be removed. However, the most important thing for both the state and the veterinarian is to eradicate the disease from as many herds as possible. This is work for the veterinary profession.

"The third point is that separated milk from creameries and whey from cheese factories shall be pasteurized before it is returned to the farm. In Denmark this has been done for years. The facts seem to show that tuberculosis is spread more through this channel than any other. This measure was considered by the commission to be one of the most important that could be introduced to prevent the spread of the disease. Yet the master of the state grange objected to it and submitted a minority report trying to justify his opposition. Owners of dairy cattle should remember and if they do not know they should be taught that if they refuse to do all they can to prevent the spread of tuberculosis, the Legislature may not think it worth while very much longer to pay for tuberculin reacting animals. The veterinarian should do all that he can to instruct his clients on this subject.

"The fourth provision referred to is the establishment of a state-wide meat inspection. The necessity and advantages of such a service are too well known to need elaboration at this time. Never before has there been proposed more constructive legislation for the control of tuberculosis. It is hoped that the veterinarian will become a positive factor in securing and enforcing legislation to eradicate this plague of cattle. Of all people the veterinarians are the only ones who are qualified by education and experience to instruct laymen in the fundamental truths relative to the nature and spread of tuberculosis.

"This proposed law gives recognition to the men who should be qualified to give advice to those who need it relative to this

and other infectious diseases. If this proposed bill becomes a law, the veterinarian will, in the terms of another, come into possession of that which rightfully belongs to him in opportunity for both private and public service. I hope in these efforts for the improvement of existing conditions relative to the diseases of live stock in the state this society will be a positive factor."

In closing his remarks Dr. Moore protested vigorously against the dissatisfaction expressed by laymen of the veterinary management of the recent outbreak of foot-and-mouth disease and ably pointed out how the acts of laymen in defiance of government and state legislation has spread many contagious diseases and mentioned specific instances where dourine, tuberculosis, contagious pleuro-pneumonia and hog cholera has been so spread.

We agree with him most earnestly that laymen cannot and *do not* grasp the dangers that lie in the spread of virus and that they to-day, could not control a single animal plague successfully without the guidance of the professional man. It is the veterinarian that made it possible for the officials in 1873 to issue a proclamation that this country was free from contagious pleuro-pneumonia, a plague that has cost other nations untold millions; and likewise it will be the veterinarian that will make it possible for the authorities to issue a proclamation in 1915 that our shores are again free from foot-and-mouth disease, and this too a scourge that exacts a stupendous toll annually from other nations. Others will get the credit and the veterinarian the criticisms.

We hope to see the day when our national government, and every state and municipality, will have at the head of its Live-Stock Sanitary Board, a capable veterinarian, who will be the absolute power and receive full credit for what he does, as well as condemnation for what he does not do.

After Dr. Moore had finished his remarks Dr. Hollingworth read a paper that dealt with the advisability of creating a fund that would be available to any member of our profession, or his family, should they become needy. The doctor justified his idea by abundance of scriptural quotations.

The society reconvened again at 9 a. m., August 4, and

listened to an interesting paper by Dr. H. S. Beebe on *The Future of the Practicing Veterinarian*. He showed by statistics and otherwise that even the calling of the country practitioner had been changed during the past decade and that preventive medicine and bovine practice is largely replacing equine practice.

Dr. Louis Griesman interested the society very much by giving the *History of the X-Ray Studies and Its Uses in Veterinary Medicine*, illustrated by lantern slides. We predict a great future for Louis with his "jack lantern" and incidentally we surmise that the X-ray may prove to be one of the greatest adjuncts in the study of veterinary medicine that has yet been discovered.

Tuberculosis in the Dog and Cat by Dr. W. Reid Blair was fully what we might expect by this noted pathologist. After giving the history, symptoms and post-mortem findings of some dozen cases occurring in his own practice, Dr. Blair plainly and ably showed that tuberculosis in dogs and cats is far more common than has hitherto been supposed, and furthermore that evidence points in most cases to human infection.

It is the present opinion that tuberculin as a diagnostic agent has not the value in carnivores in has in bovines.

The last paper of the morning was by Dr. J. F. De Vine, reporting an *Outbreak of Contagious Keratitis in Cattle and the Death of a Valuable Cow Caused by the Bacillus Necrophorus*.

The afternoon session had three good papers read by Drs. Williams, Switzer and Lefever. Discussion was limited on these owing to the fact that several important committees were to report and the election of officers was to follow.

The Resolution Committee submitted the following report:

"Whereas, The State Department of Agriculture employs a large number of veterinarians, and

"Whereas, The success of the department in the control of infectious and contagious diseases depends upon accurate and scientific work, and

"Whereas, It has been brought to the attention of this Society that certain members of the profession have resorted to non-ethical and illegal practice in the service of the Department of Agriculture; therefore be it

"Resolved, That this Society does most earnestly commend the efforts of the Commissioner of Agriculture in his endeavor to rectify these irregularities, and furthermore that we would appreciate if he would advise the Society of any such irregularities that may occur in the future, so that we may co-operate with him in such ways as seem advisable.

"Inasmuch as the recent outbreak of foot-and-mouth disease in the United States has demonstrated the necessity of professional and scientific men being in charge of the control of communicable diseases, and

"Inasmuch as it has been proposed that laymen and practical stockmen rather than veterinarians be placed in charge of the various boards and departments having supervision of this work, and

"Inasmuch as the prevention of animal diseases is directly dependent upon a definite knowledge of the cause, means of dissemination and control of such diseases; therefore be it

"Resolved, That the New York State Veterinary Medical Society in annual meeting assembled does hereby express its disapproval of such proposed action and hereby desires to express its appreciation of the efficient service in suppressing this extensive outbreak, rendered the various states and country through efforts of the officials and employees of the Bureau of Animal Industry and the veterinarians in charge of the work in the various states.

"Inasmuch as the State of New York is annually called upon to expend large sums of money in the efforts to control communicable diseases of animals, and

"Whereas, The disease known as bovine tuberculosis is one of the most important of such diseases, its spread being largely due to the practice of feeding raw skim milk and whey to calves and hogs, and

"Whereas, It is proposed to enact an amendment to the Agricultural Law providing for the pasteurization of such skim milk and whey from creameries, cheese factories and milk stations; therefore be it

"Resolved, That the New York State Veterinary Medical Society in annual meeting assembled does hereby indorse this proposed legislation as applying one of the fundamental principles in the prevention and control of bovine tuberculosis.

"From reports that are reaching us from reliable sources it is evident that the little country of Belgium has been devastated, its agricultural interests temporarily ruined, its farm and meat producing animals either destroyed or confiscated, and

"Whereas, It would appear that when peace is restored to the European nations, as we hope it soon will be, the members of our profession will find themselves without means or occupation, and

"Whereas, Other societies have already taken action to subscribe to a relief fund for our professional brethren; be it

"Resolved, That in the event that such a movement becomes crystallized by the various societies, that this society empower the president to contribute such a sum to the cause as the president and secretary-treasurer believe the society can afford.

"Since other veterinary societies have so promptly and willingly recognized the privilege of contributing to a fund for a suitable memorial for the late Daniel Elmer Salmon, be it

"Resolved, That a committee be appointed by our president to receive subscriptions from the veterinarians of our state and co-operate with the committee of the A. V. M. A. or any properly authorized committee arranging for the Salmon funds.

"J. F. DE VINE, Chairman.

"G. T. STONE.

"D. H. UDALL."

The election of officers resulted in the selection of Dr. Otto Faust, of Poughkeepsie, as President, Dr. J. G. Wills, of Albany, as Vice-President, Dr. C. P. Fitch, of Ithaca, as Secretary and Treasurer, and Dr. W. L. Williams as Librarian.

In selecting a place for the next meeting invitations were extended from Buffalo, Goshen and Ithaca. The latter won by a good majority.

In the evening we listened to a most delightful talk by Prof.

Savage of the Agricultural School. Expressing his belief in the co-operation between the stockman and the veterinary profession and the wisdom of the latter acting in the capacity of an adviser, or to check up the stockman in his feeding, watering, ventilation, etc. He believes that the veterinarian should have a knowledge of the foods available in different localities, and pointed out that a simple way of giving general information would be to first consider the roughage grown on the farm; second, the relative value of concentrates that must be purchased, and third, the manural value.

He still agrees with the teaching that has been taught for some time past, that legumes are the best roughage for cattle, and generally speaking, timothy for horses. He admonished us to bear in mind silage and roots as physiological adjuncts. He believes that corn can be fed to the horse in this locality with safety in ratio of $\frac{1}{2}$ by weight of the grain ration. He pointed out in an unusually interesting way the value of manure for permanent agriculture; touched on animal breeding, and advised that we should have our dairy animals so good that we could afford to give them all they will eat of a balanced ration.

Another simple rule which he gave in reference to selection of feed for milch cows, was that we should use three concentrates of three different plants. One of these concentrates must be bulky; the final mixture not to weigh more than one pound per quart.

After Prof. Savage finished his lecture he mingled with those who were interested in his subject answering their questions patiently, while we partook of light refreshments graciously served by the students.

J. F. D.

COMMITTEE ON RESOLUTIONS—NEW YORK STATE
VETERINARY MEDICAL SOCIETY INDORSES
REVIEW'S PROJECT FOR THE AID OF
BELGIAN VETERINARIANS.

At the recent meeting of the New York State Veterinary Medical Society at Ithaca, the committee on resolutions took

action on the proposal of the REVIEW to raise a fund to relieve our professional brothers in that devastated country, who have lost their all—homes, practice, everything. Indeed the said committee—of which Dr. J. F. De Vine was chairman—was most active, for in addition to taking action on the Belgian relief fund matter, as well as all the matters affecting the profession in the state, it got busy on the Salmon Memorial Fund, a special committee being appointed as a result of its suggestions, consisting of Drs. Moore, Berns, MacKellar and De Vine, which raised \$100 right on the ground. These are both commendable projects, one to save members of our profession in a foreign land from want, and the other in commemoration of the untiring and excellent work of a member of the profession in our own country, which we hope will take the form of a scholarship that will have for its object veterinary education. We trust that both these matters will receive the attention they merit at the national gathering in Oakland.

DR. EICHHORN BECOMES CHIEF: The many friends of Dr. Adolph Eichhorn all over the country will be pleased to learn that he has been promoted to the position of Chief of the Pathological Division of the Bureau of Animal Industry, succeeding his estimable predecessor, Dr. John R. Mohler, with whom he worked as assistant chief for a great number of years. Dr. Eichhorn's ability as a pathologist and his earnestness of purpose in all things that he undertakes, fully entitles him to this recognition of merit by the federal government; and the REVIEW voices the sentiment of the whole profession in offering its most hearty approbation and congratulations.

DR. JERVIS GOES SOUTH: Dr. H. B. F. Jervis, Houlton, Maine, who through his untiring efforts has inaugurated a thorough milk and meat inspection service in that place, has gone to Columbia, South Carolina, where he will engage in general practice, and no doubt continue his work for sanitary reform; and we shall not be surprised to find ourselves recording some changes for the betterment of the animal food products in that southern city in the not too distant future.

ORIGINAL ARTICLES.

REPORT OF THE OFFICIAL TOUR OF EUROPE OF THE AMERICAN VETERINARY MEDICAL ASSOCIATION TO ATTEND THE INTERNATIONAL VETER- INARY CONGRESS AT LONDON, 1914.

BY ADOLPH EICHHORN, WASHINGTON, D. C., AND C. J. MARSHALL,
PHILADELPHIA, PA.

(Continued from August Issue.)

AMSTERDAM.

A train ride of half an hour brought us to Amsterdam, one of the most famous of the Dutch cities. It has about 500,000 inhabitants. Like most of the large European cities, it has a large picture gallery. This one contains especially wonderful works of Rembrandt and other Dutch painters.

A large section of this city contains streets of very quaint old Dutch houses with narrow fronts and high tiled roofs. Every few blocks one sees canals running down the middle of the streets with boats plying in all directions.

Amsterdam did not offer us professionally any advantages, and we therefore devoted our stay there to excursions in which most every visitor of Holland indulges—that of a visit to the quaint old towns on the Island of Marken in the Zuider Zee and to Volendam.

The trip, which took nearly all day, was undertaken on water, in order to afford us an opportunity to observe the country and also the wonderful painstaking work of the Dutch in draining their land and guarding it by their dyke system from floods. The little steamboat took us through a series of locks and canals. These canals are considerably higher than the surrounding pasture land. It was a curious sight from the deck of the steamer to look down on the big black and white cows peacefully grazing

below. All the land is from six to twenty feet lower than the sea-level. Most of it is in pasture, because it is too wet for cultivation. Dutch windmills are scattered everywhere in great numbers, and this aids in giving the landscape a very picturesque appearance. These windmills are employed to pump the water into the canals. Sometimes it takes two or three series of windmills to raise the water high enough.

The boat stopped at a small Dutch village, through which we walked. We were met everywhere by little tots in their native costume, offering for sale various Dutch curios of native handiwork.

We also had an opportunity of visiting an Edam cheese dairy, in which all work is being carried on by hand. The cow stable was very carefully prepared for the reception of visitors, even a running strip of carpet being provided in the same. From all appearances the cow stable is not being utilized during the season of the visitors for the reception of the cows, but more so for the edification of the visitors. In one end of the stable a large number of Edam cheeses were hanging and ripening in small nets.

From here we continued our journey to an old time city by the name of Minnikendam. It is known as the dead city of the Zuider Zee. Here again we noted the many curious stores and persons selling souvenirs. The town has many old buildings, some of them dating back to 1642.

Leaving the canal the boat entered the Zuider Zee, which separates North Holland from Friesland. The land now covered by the Zuider Zee was in large farms a thousand years ago, but a great storm in 1170 broke down the dykes and the North Sea, rushing in, killed, it is estimated, over 100,000 people and rendered several hundred thousand acres of land useless. At the present time they are busily engaged in regaining this lost land, and it is estimated that in less than one hundred years practically the entire Zuider Zee will be again reclaimed for agricultural and other purposes.

After a sail of a few miles in the Zuider Zee, we reached the

Island of Marken, which is made famous by its peculiar inhabitants, who still attire themselves in the old-time Dutch costumes. This makes the place particularly attractive to the tourists. Hardly anybody ever visits Amsterdam without taking time to visit this island to note the sturdy native fishermen in their picturesque attire. Especially attractive are the children and women, who, with their curious costumes, make a splendid target for the camera fiend. The natives realize this weakness of the tourists and do not fail to capitalize it. They charge as much as they can get for posing, but one can hear at all times the clicking of a camera during such a sojourn to this island. We also visited the interesting homes of the natives, which exemplify the Dutch cleanliness and order.

From the Island of Marken we steamed up the coast to another little village of Volendam. The inhabitants here are also fisher folks, but their manner of dress is quite different from those of Marken. Their manner of approaching tourists, however, is just the same! Upon landing we were first greeted by a line of several old Dutchmen in full dress, waiting to have their picture taken and expecting for this to receive a good fee. We hastily went through the village and looked into some of the houses, which seemed to be open for inspection. Some of the members of our party were so well impressed with the native costumes that they couldn't resist the temptation of purchasing complete outfits so that upon their return to the States they could delight their friends through donning the attire of a true Dutchman. We all wished for an opportunity to see our friend Dr. Blattenberg in such a regalia, which he most carefully guarded throughout the remainder of the trip!

Upon our return to Amsterdam, as we awaited the opening of the lock to get into the canal which would take us to the city, a shrewd native blew on his cornet the national airs of every country for the privilege of passing a small sack attached to the end of a very long pole among the passengers for gratuities. There were several boats in the locks, and the various nationalities sang their native songs to the music of the cornetist. The

Americans sang "My Country 'Tis of Thee," and everybody cheered. Soon the thrilling melody of "My Old Kentucky Home" was chanted by the mellow voices of a group of pretty American young ladies, which started a vibration of patriotism among all the Americans, and everybody joined in making the harbor ring with glee. Everybody cheered, and just kept on cheering. Even the sea gulls hovered over us and clapped their wings! We had no idea that there were so many Americans among the boats. There must have been at least two or three hundred.

The following day was spent in visiting The Hague and the noted sea resort of Scheveningen. A carriage ride through this pretty city gave us a glimpse of its neatness and beautiful public buildings, while a hasty visit through the art gallery offered us an opportunity to view some of the celebrated paintings contained therein. Here we saw the original painting of Rembrandt on a demonstration in anatomy, of which many copies may be found everywhere throughout the world. We also sojourned to the summer palace of the Queen, located at a short distance from the city. It was impressive for its simplicity and grace as compared with the wonderful palaces of the royalty abroad. Her palace in the city is more impressive in every respect.

Upon our arrival at the Peace Palace, towards which Andrew Carnegie gave \$1,500,000, we dispensed with our carriages and some of the members of the party visited this magnificent building, in which the furnishings, statuary, paintings, tapestry, etc., offered an impressive sight. One room contained the pictures of the rulers of each nation at the time the building was dedicated—likewise a chair for each nation. The members of our party of course sat in the chair of the United States, and the people looked upon us curiously as each member of the party took his turn. It is to be sadly regretted that the object of this building has not fulfilled its purpose. But there is hope that at some future date all international disputes may be amicably arbitrated here, and that this beautiful structure may thus serve its purpose in avoiding such struggles as are now being waged between the leading civilized nations of the world.

During our trips through Holland we noted the busy activity of the military authorities—soldiers in full equipment being seen everywhere, horses being led from all directions which had been commandeered by the authorities for the use of the military, and trains loads of full equipped soldiers were being dispatched towards the frontier.

From The Hague we took a trolley ride to Scheveningen, which is considered the Atlantic City of Europe. The place has beautiful hotels and the famous "Kursaal" in which all the public functions, dances, etc., are held. An interesting feature of this watering place was the curious way the bathers prepare for the plunge. Wagons containing two or three cabins are provided, and after obtaining the necessary supply of towels, etc., the bathers enter one of these wagons and are drawn by a horse into the surf. Here the horse is unhitched and the bathers are left to enter the rather cool waters of the North Sea. Whenever they are ready to return to the shore the attention of the man in charge of a horse is called and he again pulls the wagon out on to the sandy beach. Of course, we had to indulge in this frolic, and it was a very joyous experience for each of us. Thousands of people are seen to sit around in chairs with high backs and covers. By turning them around from time to time the occupants can be in the shade or sun as desired. The bathing costumes are even more interesting than those seen at Lido, Italy. The reason for not describing them is more for our regard for modesty than for the want of time and space!

The ride from Scheveningen to Rotterdam took about half an hour, and we arrived there in the evening.

Our first evening in Rotterdam brought us to the realization of the imminent danger of the European conflict. A walk along the streets revealed the excited populace of this peace-loving country marching in wild enthusiasm and singing patriotic airs. In the hotels officers took up quarters, and it was apparent that we were to be crowded out within a very short time. All the railroads were taken over by the Government for the purpose of mobilization and for about forty-eight hours passengers were

barred from using them. Fortunately, Rotterdam was our last stop in Continental Europe, and we had hopes of crossing over to England on the following day, where we expected to be safe from any inconveniences of travel by reason of the impending conflict. On the following day we observed the conscription of horses whereby long strings of solipeds were being led to the various stations used for examining the animals and assigning them to the various kinds of work, according to their fitness. The work horses appeared to be very good, mostly of the Belgian type. However, a great amount of the hauling in the city is done by push carts drawn principally by dogs.

In accordance with our arrangements we proceeded in the morning to visit the State Serum Institute, which is under the direction of Professor Dr. J. Poels. The plant is located in the city in a building that appears to be somewhat inadequate. There is a government laboratory in which sera and biological products are produced for the treatment of various diseases of animals. A considerable amount of work is also being done in this institution in the examination of milk. Ridge's famous sediment test is used and very much appreciated. They employ a special apparatus for forcing the milk through the cotton diaphragm. The milk is placed in a flask, resembling somewhat a beer bottle with the bottom cut off. There is a perforated rubber stopper that is held in place by a clamp very much like that used in closing a beer bottle. A hose runs from this to a large-sized Florence flask. The flask has a glass faucet to which is connected a rubber tube. This is attached to the hydrant and the running water creates a vacuum in the flask which sucks the milk through the diaphragm.

The catalase test is used in combination with the sediment test. The sediment test is carried on in Trummsdorff tubes. They appear like those used in the Babcock test, except that the bottom of the tubes are small or capillary in size. The sediment collects in the capillary part. They count the bacteria, but consider it secondary to the other laboratory tests.

A considerable amount of work is also being done in con-

nnection with tuberculosis, but there are no laws on the subject. It is illegal to sell milk to which water has been added, but milk from cattle that have reacted to a tuberculin test or even from a cow with open tuberculosis of the udder can be sold with no restriction. The percentage of tuberculosis varies in different sections, from as low as ten in some, to as high as sixty per cent. in others. Some breeders are using tuberculin to eliminate the disease. They can keep the reactors or sell them, as they please. The subcutaneous test is being used for the diagnosis.

They have over one hundred horses in the serum plant which are used for the production of the various kinds of immune sera. Hog cholera serum is also being prepared here. The serum-alone method is being used only for vaccination of hogs. It is considered very dangerous to use the virus, and we were told that the indiscriminate distribution of virus for the purpose of vaccination might do much more harm than good. The method of preparing the serum is the same as that devised by Drs. Dorset and Niles. The slow method of hyperimmunization is being employed. The blood after being drawn is allowed to separate in high cylinders with the aid of weights and the clear serum is siphoned and used for the protective inoculation. The work of preparing and handling the animals appears to be much more crude than practiced in the more modern laboratories of this country.

Of the various biological products prepared in this establishment it was noted that some of the preparations have not been prepared anywhere else. Among these are a serum for the combating of infectious ophthalmia in cattle, and also a serum for the treating of mastitis in cows. A vaccine is being prepared for the treatment of contagious abortion; likewise sera for the prevention and treatment of navel infections and white scours, or calf pneumonia. A precautionary treatment is recommended in connection with the prevention of the disease of the newly born, which consists of a disinfection of the vagina, with a 1 per cent. creolin solution, which is applied with a stiff hair brush, in combination with a large bulb syringe. In addition to this, a willow

basket is placed over the calf's nose, so that it can suck only at desired times. The udder is washed and the basket removed, and then the calf is premitted to suck. This plan is continued for about five days.

In connection with this institute they have an interesting museum containing various specimens of tuberculosis which are being extensively used for demonstration purposes to stock raisers. Likewise, specimens for the illustrations of all the transmissible diseases of animals which are prevalent in Holland.

It was unfortunate that during our visit of this institute we could not meet the director, who was busy on that day at the War Department with the organization of the veterinary service in connection with the mobilization.

The remainder of the day we spent in worry, resulting almost in nervous hysteria, because of the possibility of our being unable to obtain passage to England that day. At the offices of the steamship companies great uncertainty prevailed as to whether permission would be given from England to have the boat make the trip, and up to five o'clock in the evening no definite information could be obtained. The director of the party even deemed it advisable to interview fishermen for the purpose of chartering one of their barges for passage to England, which we could have resorted to had it become necessary. However, at the last moment, we received the welcome news that the boat was expected to make the regular trip from the Hook of Holland to Harwich, and we immediately made all preparations for transportation.

A crowded train brought us safely to the Hook of Holland, and there we awaited the sailing of the boat, which was to take place at 11.00 p. m. Our party even managed to get staterooms, which was very fortunate when it is considered that when the boat finally sailed in the morning it was greatly overcrowded with passengers. Hundreds of people were sitting up all night without food or shelter from the strong winds and exposure. Food could not be bought at any price, and the small quantity which the boat had in store was consumed in a very few minutes by the hungry refugees. Thus, when we finally arrived in England, after about

ten hours delay, even a cup of tea or coffee with a few crackers was very appetizing and appreciated.

Our party soon boarded a train for London, where we arrived early in the evening in a happy mood from a feeling of safety.

It is not necessary for us to further enter into a description of our stay in England, since this phase of our trip was very ably presented in the AMERICAN VETERINARY REVIEW by Dr. DeVine, in connection with his report of the meeting of the Tenth International Congress.

We all greatly regretted that the Congress could not have been held as planned by the organizers, since everyone who came into contact with the Committee of Organization was highly impressed with the thorough work and elaborate plans which they had undertaken. The large attendance which they anticipated of prominent veterinarians and other scientists from practically every civilized country of the world would have assured the greatest success and given us the rare privilege of meeting the leaders of our profession under the most favorable auspices.

It is difficult now to even estimate the time when another international congress can be organized, and it appears that the neutrality of the United States should be an assurance to our colleagues abroad of their welcome reception in this country, and for this reason the veterinarians of this country should use every effort to induce the Permanent Committee of the International Congress to hold the next international congress in some city of the United States.

We do not deem it advisable to enter into a critical discussion of our trip, but we feel it our duty to express our heartiest thanks and gratitude to all those who had a part in making our trip so successful and profitable in every way. We cherish the most pleasant recollections towards our professional brethren abroad, and we only hope an opportunity will be granted when we may reciprocate their very kind treatment towards us.

Read Dr. Hoskins' address, beginning on page 752—this issue.

THE RECOGNITION OF ATYPICAL FORMS OF BLACK- LEG IN THE UNITED STATES.*

BY K. F. MEYER, BERKELEY, CAL.

A. BLACKLEG IN CATTLE.

In June, 1913, the laboratory of the Pennsylvania State Live Stock Sanitary Board received portions of the internal organs of a 9-months-old heifer, from a region where blackleg or anthrax had not been recorded. The clinical history and the autopsy report read as follows:

History.—On Monday evening the animal refused to eat and showed indications of colicky pains. Dr. G. called and attended her, and later she quieted and ate as if feeling better. Temperatures taken at different times showed no rise. Died during Wednesday night. Diagnosis: "Poisoning"?

Autopsy Report.—Guernsey heifer, 9 months old; post mortem about twelve hours after death. General condition, good. Skin, soft and pliable. Visible mucous membranes, slightly anemic. Upon removing the front leg the blood was noticed to be dark, thick and non-coagulated. Subcutaneous tissues, normal. Mesenteric arteries, deeply injected. Intestinal tract, apparently normal. Spleen was small and the pulp was pale; margins flat. Lungs showed pneumonic areas (?). Bile duct, distended and well filled. Gall bladder contained large amounts of rather thick bile. Liver showed numerous discolored (copper colored) areas, and one small yellow area which was on section "tendinous." Pericardium greatly thickened, fatty, and in the pericardial sac several "calcareous" bodies. Heart showed degeneration. (Report by Dr. S.)

A personal examination of the tissues sent revealed the following alterations:

"All the organs have a peculiar acid, rancid odor. The piece of liver is light brownish, dry but soft; under the capsule and

* Reprinted from the Proceedings of the Fifteenth Annual Meeting of the United States Live Stock Sanitary Association.

scattered through the parenchyma are yellow-grayish areas of a dry, porous, spongy consistency; the size varies from 2 to 5 cm. diameter. Some are ochraceous in color. All the fine spaces of the tissue in these areas contain gas of a butyric acid odor. The spleen is slightly swollen; the capsule is steel blue; the pulp, dark brown reddish and jam-like on section. The pericardium is covered with fibrinous filaments of a net-like structure. The blood is firmly coagulated in the ventricles. One piece of the lung is very rich in blood and shows indications of hypostatic congestion.

"The microscopical examination of the liver foci showed: Slightly motile, gram-positive, irregularly shaped rods. The spore-bearing forms are of the closteridium type; the spores are small and oval and in cells, which are rich in granules. The spleen contains a very large number of closteridium forms together with long, thick rods. The pericardial exudate shows only a very few rods, which stain poorly.

"Based on these findings, the tentative diagnosis of malignant edema, or blackleg, was made. The detailed bacteriological examination proved the diagnosis, "blackleg," to be correct.

"From the liver areas in glucose broth and agar with sterile liver pieces, brain media and blood broth, typical *B. chauvei* were isolated. The organisms coagulated sterile whole milk in four days, did not peptonize the curd, fermented glucose, saccharose and lactose; did not blacken the brain medium and were agglutinated by a serum prepared with a stock blackleg-strain (titer—1:10000) in a dilution of 1:8000; a Ghon-Sachs bacillus serum did not agglutinate the organism. Guinea pigs (4538) inoculated subcutaneously and intramuscularly died in from 24 to 36 hours p. operationem and showed a marked hemorrhagic edema, with numerous rods, which were single or in pairs on the liver surface and in the fluid of the abdominal cavity; from the heart blood the same organism as mentioned above was isolated. Two rabbits (4529 and 4530) and one pigeon (4531) injected with an emulsion of the liver foci, remained alive, and developed only slight reactions at the seat of inoculation."

This report represents only an example of several identical or similar cases which have come to my notice in the course of the last two years. The case just reported was doubtless responsible for the interest I took in similar cases in cattle in which the clinical diagnosis was not confirmed by the autopsy. Furthermore, the prolonged and extensive practice of working with anaerobes perhaps accounts for the fact that these cases have been successfully studied.

When looking over the reports one notices that the autopsies (which were done carefully) failed to indicate any skin or muscle changes; the alterations in the liver were conspicuous, however, and I remember having called the attention of my assistants to these lesions. From previous experience I involuntarily associated these changes with an infection by anaerobes. Primarily, I did not connect the process with blackleg, because I always had seen—and had read in the text books—that muscle lesions are absolutely necessary. In recent years, however, I had seen feeding infections with the *B. chauvei*, and there had frequently noticed muscular changes in the diaphragm only. I therefore reviewed the literature again and found that Warringholz (1) had described liver lesions—of the type seen by my assistants and myself—as typical for blackleg; later, Wulff (2) recorded the liver changes in twenty-six out of thirty-one cases. The latter also pointed out that in a certain number of cases (12 to 15 per cent) of blackleg, the changes in the muscles were absent and that the disease was only recognized by the liver or the pleura and pericardium lesions (sero-fibrinous exudate) followed by a careful bacteriological examination. In a small percentage (22 per cent.) of cases the muscle lesions were confined to the tongue, masseter or the myocardium (see Kiesel) (3). Similar observations were also made by Foth (4), Kitt (5), Tillmann (6) and others during their studies on the diagnosis of blackleg. They all agree that the disease is not so readily recognized as it appears from the text books, and the general opinion of the sanitarians is that the diagnostic methods are time absorbing, tedious, and call for considerable laboratory experience.

After having obtained this information, it became apparent to me that probably the above-mentioned observations did not involve anything new, but suggested that a large percentage of deaths of cattle remained a mystery on account of our lack of appreciation of the facts published by Warringholz, Wulff and others. That this reasoning was correct was proven through the recurrence of similar cases in quite different sections of the country. One instance is here reported in detail:

Material sent to the laboratory of the Board of Health of California was suspected to be anthrax. The suspicion that the case was blackleg (which is so common in the region where the animal died) was, at autopsy, not confirmed, the usual muscle lesions being absent, as the report emphasized. No anthrax bacilli could be demonstrated bacteriologically nor serologically. The organs sent for examination were shown to me. On section of a piece of liver I noticed several small, yellowish, spongy foci which contained numerous irregular, closteridium-shaped rods. My tentative diagnosis of atypical blackleg was confirmed through the bacteriological tests.

No doubt exists in my mind that numerous cases of blackleg in this country have not been correctly recognized, or have been diagnosed as "poisoning," or otherwise. I feel it my duty to call your attention to these conditions and to encourage here the study of animal diseases caused by anaerobes. To assist you in this task I will briefly discuss the methods employed and will give also, where possible, an interpretation of the possible findings. For further details I refer you to some of my publications on this subject which will appear at an early date.

The methods of investigation used by my assistants and myself are as follows:

I. *Autopsy*.—Note particularly the degree of decomposition; the peculiar butyric acid odor; the changes in the liver and pleural cavity. Never fail to incise all the muscles (tongue, masseters, diaphragm, etc.). The inflammatory changes in the intestinal tract are of minor character in blackleg. There is only a slight catarrhal or hemorrhagic duodenitis. The mesentery is always deeply injected.

II. *Microscopic Examination*.—For a bacterioscopic examination, select either muscle lesions, liver foci, or smears from the diseased serous membranes (pleura, peritoneum, etc.). Stain with thionin, Gram and also with Lugol's solution (demonstration of granulose). The *B. chauvei* has no characteristic morphology; the closteridium forms are also characteristic for some bacilli of the gas phlegmon group. Other cadaver, and soil bacteria in particular, are morphologically nearly identical with the blackleg organisms. The beginner is warned to diagnose blackleg from the microscopic findings only.

III. *Animal Inoculations*.—Small pieces of the diseased tissues are either ground with saline and immediately inoculated in guinea pigs, or, inasmuch as the material is usually contaminated with other organisms (frequently symbiosis with capsulated diplococci of the pneumococcus type), small pieces are dried at 37 degrees C. (such material is kept in sealed tubes for further study), then powdered, suspended in saline and heated for 30 minutes at 56 to 60 degrees C. This treated material is injected subcutaneously on the backs of two guinea pigs. In case the material contains *B. chauvei*, the autopsy findings are typical. In 16 to 36 hours the animal succumbs to the infection; there is a sanguinolent, hemorrhagic, subcutaneous edema, with slight or pronounced affections of the muscles. In the abdominal cavity there is only a small amount of exudate; there is no enteritis (there is always duodenitis and jejunitis in infections with the organisms of the malignant edema group). The microscopic examination is very typical. On smears from the liver surface pairs only—and never aggregations of filaments of bacilli—are seen; they stain deeply; also in the heart blood, spleen, etc., similar rods are easily found. In the diseased muscles and edema most of the bacilli are plump, somewhat distorted, and contain granulose and some spores. The absence of filaments is seen only when the autopsy is performed a few hours after death. In cadavers 18 to 24 hours old one finds frequently indications of filaments, but never as frequent as in representatives of the malignant edema group.

IV. *Cultural Studies.*—In every instance cultures should be made from the inoculated guinea pigs. In most cases the heart blood is satisfactory. The *B. chauvei* does not grow very readily in the ordinary media, even when kept strictly anaerobically. We have used, with success, the so-called Burri tubes in which a small piece of sterile tissue (best beef muscle or guinea pig liver) is placed at the bottom. Rabbit organs give poor results. The organs are stratified with a $\frac{1}{2}$ per cent. glucose agar (plus 0.5) carefully boiled and cooled to 45 degrees C. By means of a pipette the heart blood is inoculated, the necessary dilutions are made in three other tubes similarly prepared as tube No. 1; after shaking, they are cooled immediately in ice water. The preparation of plates is not very satisfactory; in our hands, deep tubes gave better results than plating methods, by keeping the same in a hydrogen atmosphere or in a vacuum. It is not permissible to inoculate liquid media with heart blood and consider the anaerobic growth obtained in such a medium to be a pure culture of the *B. chauvei*. In two instances in which I had practiced this method I found later a mixed culture of *B. chauvei* and a representative of the malignant edema group. Pure cultures are absolutely necessary for all further tests. The growth in the depth of the agar is typical, the colonies are very small, roundish or oval, with entirely or slightly lobulated edges. The *B. chauvei* never forms fluffy, cotton-like colonies. An isolated colony is transferred to blood broth ($\frac{1}{2}$ glucose plus 4 drops of horse, sheep or rabbit blood) and brain medium.

In the first medium the *B. chauvei* produces a large amount of gas, so that the medium froths like charged water. The brain medium is never blackened, and permits—in case the culture is contaminated with anaerobes—a separation by heating the medium. In brain media the blackleg organisms preserve their virulence very satisfactorily, also the spore formation is very good, so that tests for the spore resistance can readily be carried out. From the brain media, milk and coagulated serum and egg albumen can be inoculated; also the fermentative activities on various carbohydrates can be tested. All these tests can, how-

ever, be omitted, as they are not necessary for a conclusive diagnosis. For detailed information on this subject I refer you to the publications of v. Hibler (7) and Foth (8).

The pure blood broth culture is injected in rabbits, pigeons and rats. These animals are ordinarily immune to the *B. chauvei*. In our tests only one rabbit succumbed to an intravenous inoculation. In several instances the rabbits lost considerably in weight and developed abscesses. Pigeons and rats proved to be immune to American strains.

V. *Serologic Test*.—The quickest and most satisfactory diagnosis was obtained by using the ordinary agglutination test. Rabbits produce very potent sera when inoculated slowly with heated cultures. Such sera are exceedingly specific and agglutinate the blackleg bacillus only. In rare instances only, they give coagglutination in low dilutions with other anaerobes. We use 24-hour-old broth cultures and rabbit antisera, which we always keep on hand in sufficient quantities. The precipitin test is not as reliable as the agglutination tests.

A few experiments with the thermo-precipitin test, according to Hecht (9), Miessner and Lange (10) failed to confirm, in two out of six instances, the diagnosis which had previously been made. The passive immunization of guinea pigs according to Kitt (11), and the subsequent test inoculation with the isolated organism, has not been used by us.

All these tests can be carried out easily in any laboratory. It is to be hoped that some Government laboratory will prepare the necessary diagnostic agglutinating sera, and then the diagnosis of blackleg is exceedingly simple. The same methods should also be employed when investigating the etiology of other diseases of animals. One example I will briefly mention:

B. BLACKLEG IN HOGS.

The application of these methods has enabled me to explain the etiology of a hog disease which has for many years been misunderstood.

Most comparative pathologists agree that blackleg can not be

produced artificially in hogs. However, numerous cases have been recorded by Marek, Born, Battestini, Koves and others, in which lesions were seen in the muscles of pigs which were anatomically identical with blackleg in cattle, and the disease was designated as blackleg of hogs.

In 1913 I studied three specimens which were collected in Pennsylvania by my assistant, Dr. Deubler, and myself at autopsy from large hogs. The anatomical lesions in the muscles of the neck directly behind the tonsils so strongly resembled blackleg, and the microscopic findings were so similar to the *B. chauvei*, that at first the diagnosis of blackleg in hogs was made. A careful study of the organisms revealed the fact, however, that a well-known representative of the malignant edema group, namely, the Ghon-Sachs bacillus, was responsible for the lesions.

I will elsewhere enter into the discussion of the bacteriological study of this disease and its cause. Shortly after our studies had been completed, Koves (12) reported some work which confirmed our observations. It is therefore proved that the blackleg-like affections in hogs are clinically and pathologically an entity, are apt to occur in this country, and are caused by the Ghon-Sachs bacillus. This observation shows, furthermore, that the Ghon-Sachs bacillus exists in North America and can therefore also be expected in other diseases (malignant edema in horses, sheep, etc.). The bacillus is also pathogenic for man. Dinwiddie (13), in his recent studies on hog cholera, describes anatomical lesions and an anaerobic organism, the first being similar to those noted by Koves, the latter probably identical with the strains isolated by myself.

Recent studies of a disease of cattle in the Sierra Mountain ranches (which is still in progress) offered further opportunities for the study of blackleg-like affections. The methods cited in this review have proven exceedingly valuable and can, therefore, be fully recommended.

Conclusions.—1. Attention is called in this note to the occurrence in this country of "atypical" blackleg. The term is used to specify that blackleg can occur in cattle without showing

the lesions published in text books and commonly emphasized to students and the laity. The pathologic-anatomical lesions (particularly in the internal organs, as liver and pleura) are far more multiform than suspected. It is essential that complete autopsies be made on all cattle; also, sporadic cases often offer valuable information and enable the sanitary officer to prevent further losses. The methods of diagnosis are cited and explained.

2. The occurrence of blackleg-like affections in hogs in this country (in Pennsylvania) is reported. As a causative agent, the so-called Ghon-Sachs bacillus has been found. These results are confirmed by the work of Koves in Hungary.

Dr. Haslam: At the Kansas Station, Dr. Franklin and myself, particularly Dr. Franklin, have done considerable work on "blackleg," and as Dr. Franklin is not here I will report the work.

One such case as was just reported in the hog has been encountered, and the same conclusion reached, though we did not attempt to name the organism. The case was in a valuable hog which had been shipped to the college, where it died. Post mortem showed along the neck black meat, the odor identical with that which we commonly associate with blackleg. We have had at various times a good many pseudo-blackleg cases. In the case of this hog one would have been absolutely positive from the odor that it was blackleg. We use a little different culture medium, and perhaps it is prepared a little more simply than that recommended by Dr. Meyer. Make up a bouillon, starting with liver instead of the ordinary meat, and then add agar which gives you a fairly transparent culture medium. I find that the blackleg has a fairly typical colony, not, to be sure, an absolutely typical colony, but when the size and the appearance of the colony under the hand lens is seen you can get considerable information. Isolate into tubes of brain medium, made by taking fresh brains from the slaughter house, which are ground up and mixed with the liver bouillon, which gives a medium on which you can cultivate the bacillus. It grows,

and shows a characteristic growth when you are familiar with the organism. In this particular case, the cultures were made, and they showed a slight difference morphologically. Almost anything looks like blackleg when you compare it with the pictures in the text books. However, Dr. Franklin is able to tell a great deal from their morphology. To those who are working every day with blackleg the details of morphology, staining, etc., mean a good deal, but to those who are not working constantly with blackleg they do not mean anything. This organism from the hog has a morphology slightly different from that of the blackleg bacillus.

We have a blackleg anti-serum that is prepared from pure cultures. It was checked up with Foth culture from Germany. We found that Foth's anti-serum would protect against these American strains. Then we made up blackleg anti-serum from our own strains which would protect against Foth's strain, and it also protected against the strains that were isolated from the Lyonnaise vaccines and the Bernese vaccines. So we find no international difference between the blackleg strains. That increases our confidence in the test that we commonly apply.

We take four guinea pigs and give two of them a test of the culture under consideration; two are not given it. If the two that are given the serum survive we feel pretty confident that we have the diagnosis of blackleg. In the case of the hog referred to the serum had no protective action against the pseudo-blackleg. We have encountered other strains that we have worked through in the same way. Those strains are sometimes more pathogenic than the strains I have spoken of. One strain came through a contamination, and the contamination resulted in the death of a mule that was given a subcutaneous injection. Another strain is of quite wide importance inasmuch as it frequently exists in a contamination in biological products. I think the question of the diagnosis of blackleg and the question of the pseudo-blackleg, increase in importance as we know more about them.

The cases reported in which it is impossible for the ordinary veterinarian to diagnosis the blackleg are very interesting. We

have had a few cases of cattle where we had the minor lesions, but we have not had an opportunity to investigate the cases of the obscure difficulty. In most cases where the farmer thinks he has blackleg he does have blackleg, judging from the samples that are sent in to us.

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HORSE VS. AUTO TRUCK DELIVERY: Philadelphia Dealers Present Strong Points in Favor of Efficiency and Economy of Horses for Delivery Purposes.—The proprietors of the Bull's Head Horse Bazaar, in West Philadelphia, have just published a little booklet entitled "Horse Delivery Versus Auto Truck Delivery," which contains some interesting facts and figures bearing on transportation problems, and which is notable because it represents almost the first effort among dealers to present the case for the horse. While millions of dollars have been spent to promulgate the advantages of the motor truck, scarcely a man interested in the horse breeding and selling industry has lifted a hand to put the other side of the picture before the public.

One of the strong points made by the Philadelphia dealers is that the shrinkage in value of horses and wagons is very slight—horses, when well bought, sometimes selling after several years' use for more than they cost—whereas the depreciation in the market value of a motor truck is said to be sometimes as much as eighty per cent. after one year's use.

Another argument put forth in favor of the horse drawn truck is that when anything breaks—which is very seldom—an expert machinist is not often required to patch it up. Usually the driver can repair wagon or harness, whereas it is stated that the motor vehicle must usually be towed to the repair shop and overhauled at a heavy cost.

(Continued on page 724.)

THE ETIOLOGY OF PYEMIC ARTHRITIS IN FOALS.*

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This disease is common to calves and foals, occurring generally when the animal is but a few days old, although typical cases may occur in foals at the age of several months. The symptoms consist of rapidly developing articular inflammation causing impaired locomotion, fever, omphalophlebitis and often pulmonary and intestinal disturbances. Suppuration of infected joints with internal abscesses is common.

Lack of definite knowledge in regard to the etiology is apparent when one studies the literature. The earliest description of the disease was by Bernard of Boulogne in 1828. The symptoms are accurately recorded and it is interesting that he believed the disease originated in the mares and was transmitted through the milk. A few years later, Prichard, an English writer, after describing the disease, states the cause to be due to an alteration in the milk, the result of working the mare and allowing the colt to suckle between periods. Other early writers considered the disease as tuberculous or as rheumatism. To-day most of those who have studied the disease believe that it results from umbilical infection at the time of birth or subsequently. This view has much evidence in its support, but although it has been held for years and appropriate precautions taken to prevent infection through this channel, the disease is still extremely prevalent. Cases also develop in utero or apparently a few hours after birth. At present there is no unity of opinion as to the causative agent.

PERSONAL OBSERVATIONS.

During the last two years many bacteriological examinations have been made of material from cases of this disease forwarded

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to this laboratory. In most cases practitioners would send only pus formed in the joints during the latter period of the disease and in almost all such cases the cultures showed mixed infection. That the organism to be discussed was not recovered earlier is, I think, accounted for in this way. On several occasions, however, I have obtained fluid from infected joints during the early days of the infection, and in this fluid the organism to be described was obtained in pure culture.

Case 1.—Colt foaled in open; disease never observed on the premises before although three cases occurred this season; navel not ligatured at time of birth. When 8 days old developed typical case of "joint ill," the left hock being chiefly involved. Ten days after first symptoms the hock was aspirated and cultures made of the synovia; at the same time blood cultures were made from the jugular on glucose liver broth.

On the blood agar inoculated with the synovia a pure culture of a gram-negative bacillus was obtained; eight colonies developed, all of the same type. Direct smear showed a few leukocytes but no bacteria. This, however, is not strange as the inflammation is chiefly periarticular.

In eighteen hours large quantities of gas formed in the glucose broth culture from the blood. Smears showed numerous gram-negative bacilli. On plating out, a pure culture was obtained of the same organism as that from the synovia. This animal died about four weeks later and at that time I isolated streptococci as well as gram-negative bacilli, the streptococci predominating.

Case 2.—Colt, foaled in the open; naval ligatured by veterinarian and treated antiseptically. Twelve days after birth typical symptoms of joint ill were observed. Ten days later the affected hock was aspirated and cultures made from synovial fluid, blood cultures being made at the same time. From the joint on blood agar a pure culture of a gram-negative bacillus was obtained; again the number of colonies were few, about twelve, all of them having the same appearance. From the blood pure culture of an organism identical with the one obtained from the synovia was isolated.

Case 3.—Colt born in open, navel not ligatured, no evidence of umbilical infection. Ten days after birth joint ill developed, both hocks being involved, giving pure cultures of a gram-negative bacillus. This colt made a slow recovery.

Case 4.—In this case no history was given save that the sample of synovia has been aspirated two hours after death. Numerous short gram-negative bacilli with many short-chain streptococci were present in the smears. From blood agar plates both organisms were isolated.

Case 5.—No history, fluid aspirated from joint after death. The smears gave gram-positive cocci and gram-negative bacilli. Culture on agar gave a growth of the *staphylococcus aureus*, streptococci and colonies of a gram-negative bacillus.

Case 6.—No history; blood culture sent with statement that it was from a case of septic arthritis. Blood agar plates gave pure growth of a gram-negative bacillus.

In two other typical cases, pure cultures of *streptococcus* were obtained from the pyemic joints. In one case this organism was obtained from the blood also.

Pus from about fifteen discharging joints and navels has been examined and all showed mixed infection with streptococci, *staphylococcus aureus* and colon bacilli, streptococci generally predominating.

MORPHOLOGICAL AND CULTURAL CHARACTERISTICS OF THE BACILLUS.

It is a very short bacillus with rounded ends frequently resembling a coccus, from .2 to .5 micron in width, and .3 to .1 micron in length. In old cultures much longer organisms are often observed; frequently seen in pairs, but never in chains. It is gram-negative, stains well with all anilin dyes, and very motile, especially in young broth cultures.

Agar Slants.—On agar +6 to +1.0 to phenolphthalein the growth, especially when blood has been streaked over the surface, is characteristic within twenty-four hours. The growth is dull and if it has spread to water of condensation, this is covered with

a grayish pellicle; at the base of the slant numerous wrinkles develop especially in the median line. The growth is not slimy but more membranous, being removed from the slant at times with difficulty.

TABLE I.
THE RESULTS OF TESTS OF CARBOHYDRATE FERMENTATION.

Strain.	Glucose.	Lactose.	Mannite.	Dulcite.	Raffinose.	Saccharose.	Milk.
Blood, Case 1...	A + G +	A - G -	A + G +	A + G	A - G -	A - G -	A - G -
Joint, Case 1....	A + G +	One bubble on 2d day	A + G +	A + G	A - G -	A - G -	A - G -
Joint, Case 1 at death.....	A + G +	A - G -	A + G +	A + G	A - G -	A - G -	A - G
Joint, Case 2....	A + G +	One bubble on 2d day	A + G +	A + G	A - G -	A - G -	A - G -
Blood, Case 2...	A + G +	A - G -	A + G +	A + G	A - G -	A - G -	A - G
Joint, Case 3....	A + G +	A - G -	A + G +	A + G	A - G -	A - G -	A - G -
Joint, Case 4....	A + G +	A - G -	A + G +	A + G	A - G -	A - G -	A - G -
<i>B. coli communis</i> "Dunham"....	A + G +	A + G +	A + G +	A + G	A + G +	A + G +	A + G +

A + = acid produced. A - = no acid produced. G + = gas produced. G - = no gas produced.

Agar Streak.—This is also characteristic after a few days' growth. Where the growth is most luxuriant at the bottom of the slant there is a tendency to spread out in concentric rings through which radiate numerous wrinkles.

Agar Plates.—At first the colonies are transparent and delicate, but in twenty-four hours a peculiar concentric ring formation occurs.

Gelatin Stab.—No liquefaction.

Milk.—Changed in reaction after five days from plus 1.4 to phenolphthalein to plus 0.9; alkaline to litmus.

Broth.—For first twenty-four hours the growth is very turbid; later some strains produce a pellicle while others do not. In both cases a slightly viscid sediment is produced.

Peptone Solution.—No indol.

Nitrate Broth.—Not reduced.

Carbohydrate Fermentation.—The media were prepared according to the standard methods of the American Public Health Association. The broth was incubated for four days. The results are given in Table I.

From these characteristics it is seen that the organism belongs to the colon-typhoid group and is closely related to *B. paratyphosus beta*.

To further ascertain this relationship, complement fixation tests were made, using antigens prepared from two strains of the paratyphoid bacillus B., the organism under discussion and colon bacilli. The antigens were made as described on page 5 and their strengths equalized as nearly as possible. Fixation of complement was never obtained with these antigens, although controls both positive and negative were quite satisfactory. Although shown by these tests not to be a true paratyphoid bacillus B., the organism can, I think, be considered as of a closely related species.

AGGLUTINATION.

A potent agglutinative serum was obtained by injecting a rabbit intravenously on three successive days with 50 million dead organisms (Strain 4). On the sixth day after the last injection the rabbit was bled, serum separated and inactivated at 56 C. for thirty minutes. It now caused agglutination of Strain 4 in a dilution of 1 to 3,000. Table 2 shows the results of these tests. The different strains were grown for twenty-four hours at 37 C. and broth + 10% phenolphthalein diluted to a uniform turbidity was used as in the typhoid agglutination test.

TABLE 2.
AGGLUTINATION.

Strain.	Dilution of Immune Serum.			
	1 1500	1 2000	1 3000	1 4000
1.....	++	++	±	-
2.....	++	++	±	-
3.....	++	++	++	±
4.....	++	++	++	-
5.....	++	±	±	-
6.....	++	++	±	-
7.....	++	++	±	-

++ = strong agglutination. * = doubtful agglutination. - = no agglutination.
Normal rabbit serum in no case agglutinated in dilutions above 1 to 10.

The tests, if not demonstrating the absolute similarity of these organisms, indicate their close relationship, the results being far more pronounced than those in group reactions.

COMPLEMENT FIXATION.

Experiments were made to establish if possible relationship between the organism and the disease. The time of the year (November) was unfortunate, as no acute cases could be obtained and only few chronic ones. There were, however, some cured cases and the blood was obtained from them, also from their dams and from mares that had given birth to foals which developed the disease.

TABLE 3.
TITRATION OF COMPLEMENT AND HEMOLYSIN.

5 Percent Suspension of Sheep Cells.	Hemolysin 111000	Complement 1110	Normal Salt Solution.	Hemolysis.
.5 C.C.	.25	.25	1.5	Complete
.5 C.C.	.2	.25	1.55	Complete
.5 C.C.	.15	.25	1.6	Complete
.5 C.C.	.1	.25	1.65	Partial
.5 C.C.	.05	.25	1.7	None
.5 C.C.	.25	.2	1.55	Complete
.5 C.C.	.2	.2	1.6	Partial
.5 C.C.	.15	.2	1.65	Partial
.5 C.C.	.1	-.20	1.7	None
.5 C.C.	0	0	2	None
.5 C.C.	.5	0	2	None
.5 C.C.	0	.5	1.5	None

Hemolysin .15 = 1 unit of hemolysin with .25 complement; in test .3 hemolysin would be used with .5 complement. The quantities in Tables 3, 4 and 5 refer to c.c.

Agar slants were grown for twenty-four hours, the organisms washed off in normal salt solution, the suspension heated at 60 C. for fifteen minutes, carbolic acid added to make 0.5 strength. Antigen was tested for specificity by using normal and immune rabbit serum and normal horse-serum. Complement was obtained in the usual way from fresh guinea-pig blood, diluted to one-tenth, then titrated. The serum to be tested was removed from the clot and inactivated at 56 C. for one-half hour within forty-eight hours after clotting. The night before the test was made sheep blood-cells (2 drops solid cells) were added to each tube and kept in ice-chest. This has been found the simplest way to

avoid inaccuracy due to presence of natural hemolysin. Tables 3, 4 and 5 illustrate the methods used.

In some cases fixation could be obtained when much greater dilutions of antigen and serum were used. It must, however, be borne in mind that the animals from which the blood was obtained were either cured cases or apparently normal animals. On this account the concentration of antigen and serum in the tests was increased, although not sufficiently to make the test of doubtful value.

TABLE 4.
TITRATION OF ANTIGEN.

Antigen.	Serum.	Comple- ment.	Normal Salt Solution.	Hemolytic Ambo- ceptor.	Sheep Cells 4 Percent Suspension.	Hemolysis.
1.0 c.c.	Normal	.5	—	.5	.5	Complete
.8 c.c.	Normal	.5	.05	.5	.5	Complete
.5 c.c.	Normal	.5	.35	.5	.5	Complete
0	Normal	.5	.7	.5	.5	Complete
	.3 c.c.					
1.0 c.c.	—	.25	.25	.5	.5	Complete
1.0 c.c.	—	.5	.5	.5	.5	None
.5 c.c.	Immune .1	.5	.4	.5	.5	None
.4 c.c.	Immune .1	.5	.5	.5	.5	None
.3 c.c.	Immune .1	.5	.6	.5	.5	None
.2 c.c.	Immune .1	.5	.7	.5	.5	Trace
.1 c.c.	Immune .1	.5	.8	.5	.5	Almost Complete
—	Immune .2	.5	.8	.5	.5	Complete

Antigen, serum, complement and salt solution at 37 C. (water bath) for 30 minutes before adding amboceptor and sheep corpuscles. 0.5 per cent. antigen was maximum quantity used; $2\frac{1}{2}$ times that quantity which gave complete fixation with known positive serum. This quantity was not anticomplementary nor was it hemolytic.

TABLE 5.
ILLUSTRATION OF COMPLEMENT FIXATION TEST.

Antigen.	Serum.	Comple- ment 2 Units.	Salt Solution.	Hemoly- sin 2 Units.	Cells.	Hemolysis.
.5	Known positive	.15	.5	.35	.5	None
.5	Known positive	.1	.5	.4	.5	None
.5	Known positive	.05	.5	.45	.5	None
.0	Known positive	.3	.5	.7	.5	Complete
.5	Known negative	.15	.5	.35	.5	Complete
.5	Known negative	.10	.5	.4	.5	Complete
.5	Known negative	.05	.5	.45	.5	Complete
.0	Known negative	.3	.5	.7	.5	Complete
.5	Serum to be tested	.15	.5	.35	.5	None
.5	Serum to be tested	.10	.5	.4	.5	None
.5	Serum to be tested	.05	.5	.45	.5	Partial
.0	Serum to be tested	.3	.5	.7	.5	Complete

The results obtained from a considerable number of tests (Table 6) indicate that a specific relationship exists between the organism isolated and used as antigen and the disease pyemic arthritis or joint ill as it occurs in this region. Certain cases (2, 3, 15, 16, 17, 18) are especially interesting, positive reactions being obtained from the blood of both dam and foal. Numbers 8, 9, 25 and 29 also are worthy of special notice, these mares having aborted during the year, and it will be noticed, gave a certain amount of fixation indicating a possible relationship between the organism isolated and that of contagious equine abortion.

TABLE 6.
RESULTS OF TESTS FOR COMPLEMENT FIXATION.

1. Normal horse.....	No fixation
2. Dam in Case 3.....	Complete fixation
3. Foal in Case 3.....	Complete fixation
4. Dam in Case 4.....	Complete fixation
5. Gelding, 12 years, on infected farm.....	Complete fixation
6. Mare, 5 years, had arthritis as foal.....	No fixation
7. Dam of diseased foal.....	Partial fixation.
8. Mare, aborted in spring.....	Complete fixation
9. Mare, aborted in spring.....	Complete fixation
10. Colt recovered from joint ill.....	Complete fixation
11. Mare, history unknown.....	No fixation
12-13. Geldings, history unknown.....	No fixation
14. Immunized rabbit.....	Complete fixation
15. Mare, foal with joint ill in spring.....	Complete fixation
16. Colt of Mare 15.....	Complete fixation
17. Mare, foal joint ill in spring.....	Complete fixation
18. Foal of Mare 17.....	Complete fixation
19. Colt, 2 years, pyemic.....	Complete fixation
20-24. Mares giving birth to foals with joint ill this spring.....	Almost complete fixation
25. Mare, aborted this spring.....	Almost complete fixation
26. Mare, never in foal, joint ill on farm.....	Almost complete fixation
27. Mare, had foal with joint ill all this spring.....	50 per cent. hemolysis
28. Colt, joint ill one year ago.....	50 per cent. hemolysis
29. Mare, aborted two months ago.....	No fixation
30-46. Mares giving birth to foals with joint ill this spring.....	No fixation
46-52. Mares that recently aborted.....	No fixation
38-39. Foals recovered from joint ill.....	No fixation
40-50. Supposedly healthy mares.....	No fixation

Cases 20-50 occurred in a district where septic arthritis has been prevalent for years.

DISCUSSION.

To what extent the organism described is responsible for septic arthritis cannot as yet be stated. Isolating the organism from blood and joint in pure culture from acute cases, although suggestive, by no means demonstrates that it possesses pathogenic properties for the animal from which it was recovered. But the fact that positive fixation tests have been obtained frequently

with blood of diseased foals and their dams and not from the healthy controls is strong evidence in favor of a definite relationship between the organism and certain cases of arthritis. Further, I think that these results strongly support the idea that the foal frequently is infected before birth. Intra-uterine infection alone can account for the cases that develop within a few hours after birth. I would not wish to belittle the present prophylactic methods, but rather supplement them, and thereby prevent infection from a hitherto neglected source. In many instances arthritis no doubt may arise from navel infection with the usual pus-forming bacteria subsequent to birth; but as before stated, such infection cannot account for all cases. The possibility of infection being carried from diseased to healthy mares by coitus must not be overlooked.

I would like to draw attention to the interesting fact that the organism isolated and described in this paper bears a very close relationship to the one recently isolated by Good in contagious equine abortion. In cultures the only difference observed is that the bacillus of equine abortion causes fermentation in raffinose while my organism does not attack this carbohydrate. However, difference in strains would readily account for this. The most convincing evidence that these organisms are but strains of the same species is that they cannot be differentiated by means of the complement fixation test. Serums giving complete fixation with antigen prepared from my organism also give fixation in corresponding dilutions with antigen prepared from the bacillus of equine abortion. With characteristics that correspond so closely, these organisms appear to be but strains of the same species and it is quite probable that the same organism may be responsible for both septic arthritis and abortion. These diseases commonly co-exist in the same locality; furthermore, it is of frequent occurrence for a mare to abort one season and during the next to deliver a colt that develops septic arthritis. The more one studies the clinical history of these disease the more convincing becomes the probability of their common etiology in many instances.

CASTRATION OF THE BIRD (CAPONIZING).

BY DR. B. F. KAUPP, PATHOLOGIST, ANIMAL INDUSTRY DIVISION, N. C.
EXP. STA., W. RALEIGH, N. C.

(Author of Poultry Diseases and Their Treatment.)

There are great possibilities in the more extended practice of capon production. The fact that there is a growing demand, as their value as a superior meat product over the cock or cockrel, and the fact that they bring about thirty cents a pound while the uncastrated bird brings only about fifteen cents, together with the fact that they become very much larger, makes this phase of poultry husbandry a productive and remunerative one.

The male bird after the removal of his reproductive organs loses his masculine appearance, becomes sluggish and gains weight rapidly as a result of his inactivities.

From the loss of that internal secretion manufactured in the testes we note that there is the same difference which is observed in other animals under the same treatment. The development of the gelding as compared to the horse and the barrow to the boar are some concrete examples.

The same improvement in meat is noted in the castrated or caponized bird as in the steer over the meat of the bull or the meat of the barrow superior to that of the boar, hence capon raising is highly desirable and if properly managed is a profitable undertaking.

A capon of the Plymouth Rock, Wyandotte or Rhode Island Red breed should weigh fully seven or eight pounds when eight months of age.

Light capons are produced from the Rocks, Wyandottes and Reds while the heavy capons are produced from the Brahmans and Cochins.

The cockrel should be caponized when he weighs from one to one and one-half pounds which will probably be about the eighth to the tenth week.

If the birds are allowed to become too old before operation the testes are found to be very large, the removal of which may prove fatal to the bird. If the birds are hatched from March to May the operation could be performed in the months of June to September and with proper feeding and care these birds should then be ready to market from December to March.

The equipment needed to perform this operation is a table provided with means of confining the bird on it and instruments consisting of a knife or scalpel with which to make the incision or cut through the abdominal wall, a hook for tearing through the peritoneum or lining of the abdominal cavity, air sac walls and at times through the mesentery and a spreader for holding the wound open while the removal of the testes is accomplished.

The intestines may be pushed to one side by aid of the end of a scalpel.

An improvised table may be made by taking a barrel, using two strings and two weights of sufficient size to hold the bird down, usually about the size of a half brick. The strings are doubled and one looped around the legs, the other around the base of the wings and half bricks tied to the free ends as shown in Fig. 1.

A poultry operating table has been designed by the writer as shown in Fig. 2. It consists of a top two feet wide and thirty inches long. This table is provided with four inch cross pieces as shown and are located about half way from the top to the ground and provided with two awning hooks on either side. Holes are bored through the top at suitable locations. The loop of the string is run through the hole on its respective side and over the legs or base of the wings and the legs and wings drawn snugly down to the top and the free end of the string wrapped around the hook and given a half hitch.

If the bird or birds are to be operated on in the forenoon, no feed should be given on the previous day. It is also well to withhold water as an abundance of water causes more hemorrhage owing to the increased amount of liquid in the body tissues. It is rather difficult to accurately and satisfactorily operate when the intestines are gorged with feed.

The operation is best performed in the bright sunlight unless the operator is provided with a head reflector.

The instruments should be kept in a shallow pan of antiseptic as creolin or better formaldehyd solution. A small amount of absorbent cotton should also be at hand. After the bird is confined pluck a few feathers over the field of operation (between the last two ribs). It is well to place a small chunk of ice in the pan of antiseptic and use the ice water in sponging the field of operation. The cold water thus acts as an antiseptic as well as



Fig. No. 1—Top of barrel as an operating table.

causing a contraction of the capillaries of the region and less hemorrhage will result.

When ready to make the incision pull the skin over so that after the incision is made and the skin released the wound into the abdominal cavity will be closed. In making the incision through the skin the bird will struggle on account of the fact that the skin is endowed with tactile or sensory nerve terminals. The muscular and areola tissue is not so sensitive. After this incision is made the bird will struggle very little. The knife or scalpel should be sharp and the incision made quickly. The upper

point of the incision should be about one-half inch from the center of the backbone or vertebra. The incision should be about one inch long. As a nerve artery and vein pass along the posterior border of each rib, it is necessary to not cut close to the posterior border but make the incision close to the anterior border of the last rib.



Fig. No. 2—A poultry operating table.

A second incision is now made in the same wound, this time cutting through the abdominal muscles. Care must be exercised not to cut too deep and injure the internal organs. If the peritoneum (the thin rather glistening tissue lining the abdominal

cavity) is not cut this can be broken through by aid of the hook and insert the spreaders. Now tear through the walls of the air sac and push the intestines to one side and the top testis will be in plain view. The testis will appear bean shaped, about one-half inch long and yellowish-white in color. It lays up close to and is attached by connective tissue to the body of the vertebra and large abdominal blood vessels. (See Fig. 3, No. 1.) If it is the desire to remove both testes through the one opening it is necessary to tear through the mesentery or web-like membrane supporting the viscera, care being taken not to make the opening too close to its attachment to the back bone or vertebra or fatal hemorrhage may take place as a result of rupturing these delicate vessels.

If the opening has been properly made the lower testis will be in plain view. Always remove the lower one first as if the upper one be removed first there may be some hemorrhage take place that will make it very hard to find the lower one later. For beginners it is better to operate from both sides, each time removing the upper one.

The testicular tissue is very soft and it is necessary to use great care to remove all of the tissue. If it is crushed it will be very difficult to successfully remove it so that it is necessary that the operation be done with skill. If care is not used often the end of a testis will break off and this part remaining makes a slip. This small particle will furnish some internal secretion and the bird can neither be regarded as a cockrel or as a capon. Slips are undesirable. The accidents may be as follows: on account of the testes laying close to the vertebra or back bone in close proximity to the abdominal aorta and other large vessels and that the capsule of the testis is attached to them too much traction or improperly applying the tractors may result in rupture of the vessel and fatal hemorrhage occur at once. If the abdominal aorta is ruptured there will be noted a hissing sound and the bird becomes pale in the face and comb and immediately collapses. In this case cut off the head and the bird can be used for food. If the bird is allowed to struggle after the operation a large

vessel already injured by the operation may rupture and fatal hemorrhage result.

After the operation if the incision has been properly made no suture is necessary but if the opening in the abdominal wall be large it is well to take one or two sutures with clean sterile cotton or silk thread.

After the operation is completed remove the bird as carefully as possible and quietly place in a clean coop or run bedded down



Fig. No. 3—Location of testes of a cockrel.

with clean straw. Do not allow them in coops or inclosures where they can jump upon boxes, perches or fly as they must be kept down on the floor for a few days.

Supply the birds with clean fresh water and give them ground feed mixed with milk as soon as they are placed in their runs. They do not apparently suffer any inconvenience from the operation and will eat heartily immediately after the operation.

On the third day examine each bird to make sure there are no "wind puffs" or emphysematous conditions, that is, air worked under the skin from the edge of the wound or incision. If wind puffs or emphysema is present puncture with clean sterile sharp knife and allow the air to escape. Birds have a great resistance against the common germs of wound infection as

staphylococci and streptococci and fatalities from this cause is very rare, if at all.

The wound should be entirely healed in three weeks' time.

Fig 4, No. 1, shows a Barred Plymouth Rock Capon and No. 2 a barred Plymouth Rock Cock. Note difference in head and general appearance between the capon and the cock. Capons are usually marketed at about 10 months of age.

OVARIECTOMY OF THE PULLET.

An unsexed (spayed) pullet is called a poulard. Spayed pullets make more rapid growth without the handicap of egg

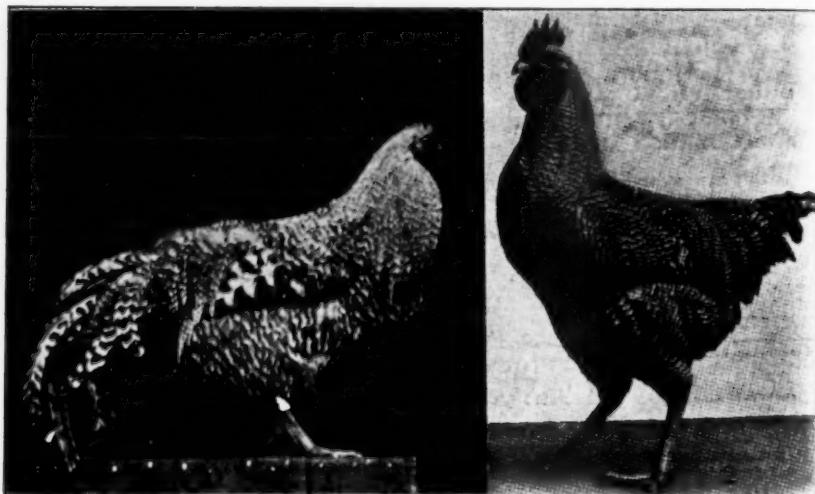


Fig. No. 4—1. Capon. 2. Cock.

production, at a later stage, and the meat is of improved quality and flavor. The spayed pullet takes on some of the appearance of a cockrel. The poulard, like the capon, becomes an outcast and are never known to cackle.

The pullets are usually operated upon at about the same age as in caponizing the cockrel and usually in the late spring or early summer. The pullets are prepared in the same manner as for cockrels for caponizing. The incision is made in a similar manner as in the cockrel and the undeveloped egg cluster is found in

a similar location in the pullet as the testicles in the cockrel. With a pair of artery forceps grasp the undeveloped oviduct, which will be found to be about the size of a broom straw, and remove about one inch of this and the ovary. Care must be taken not to cut or rupture any of the large abdominal blood vessels laying just back of the ovary and against the vertebra (a similar precaution as in caponizing). The removal of a section of the oviduct and ovary prevents the further development of the egg canal and functioning of the cells of the canal and the formation of eggs. Pullets which have begun to develop eggs cannot be successfully operated upon.

The after treatment is the same as for capons.

DESCRIPTION OF CUTS ILLUSTRATING CAPONIZING OR CASTRATION OF THE FOWL.

FIG. 1.—(a) The top of a barrel of convenient size for an operating table; (b) a half brick, which is about the right size for a one and one-half pound chick, used as an anchor; (c) the point at base of wings and legs around which a loop of cord is placed to hold the fowl securely; (d) the spreader inserted in the wound; (e) a wire and canula used to remove the testes, the testis is within the loop.

FIG. 2.—(a) The top of the operating table; (b) the point at base of wings and legs around which the loop of string is placed which string is passed through holes in the top of the table and the free ends brought around the awning hooks at (c) and given a half hitch which securely fastens the bird to the table; (d) illustrates the point of operation showing the incision in the skin. The table is smooth and enameled making it possible to keep it in a sanitary condition much as a table for other small animals.

FIG. 3.—1, the testicles; 2, the adrenal gland; 3, the kidneys; 4, the ureter; 5, the vas deferens; 6, the rectum; 7, the lungs; 8, a line between the last two ribs.

FIG. 4.—1, a Barred Plymouth Rock capon; 2, a Barred Plymouth Rock cock. Note the difference in the development of the head and in the general appearance.

IMPORTATIONS OF PUREBREDS IN 1913.

The Bureau of Animal Industry of the Department of Agriculture has listed all the horses which were imported for breeding purposes in 1913, and for which certificates of pure breeding have been issued. The enumeration follows: Percherons, 882 stallions and 600 mares; Belgians, 621 stallions and 362 mares; Shires, 128 stallions and 57 mares; Clydesdales, 45 stallions and 53 mares; Hackneys, 14 stallions and 29 mares; Thoroughbreds, 14 stallions and 14 mares; Welsh Ponies, 12 stallions and 95 mares; Suffolks, 12 stallions and 26 mares; Shetland Ponies, 4 stallions and 26 mares; and standard-bred, 1 stallion and 2 mares. This was a total of 1,733 stallions and 1,264 mares.—(*Breeders' Gazette*.)

HEMOGLOBINURIA.

By W. H. LYNCH, D.V.S., PORTLAND, ME.

Psychology is nowadays a somewhat overworked word. However this is not true of the field of labor of the veterinarian. It has frequently amazed me to see to what a very large extent it may be successfully applied in our clinics, and how little if ever such use is made of it. Now it has been my habit for a good many years to use psychologic processes in securing the co-operation of the creatures I am treating. At the very outset, if it is not a case where my patient is frantic with pain, and palliative measures demanded without loss of time, I endeavor to make his acquaintance as politely and cordially as I am able, that I may make him understand that I wish to help not hurt him. In fact—become as much as may be—*en rapport* with him.

A horse is as finely organized a creature as exists. He quickly responds to a gentle manner and a carefully modulated voice, as well as a velvet touch. He is offended and repelled by a coarse hand and a shrill, raucous tone of voice. He dislikes being handled with scant consideration. Equally do other creatures we encounter object to rough manners and proclaim their dislikes in no uncertain terms. Then how very much worth while to elicit their co-operation; to speak them fair. I find in a majority of my cases that there is a very real relation between the mental states and the cures of my patients. A correspondence too in the case of the ones I have not been able to save. If a horse fights all efforts made for his relief, he has probably decided his case is hopeless and in spite of a fairly optimistic prognosis he resolutely defies the treatment. Again I have known many where the prognosis was unpromising make good recoveries, because they were patient, hopeful and helpful, responsive to friendliness.

Especially do I find these conditions true of the cases of hemoglobinuria I have treated. Yes, I know most of us call it azoturia; I do myself, but a majority of our authorities readily

demonstrate that azoturia, although in general use, is a misnomer.

The laity are confirmed in the erroneous opinion that it is a disease of the urinary organs because of the appearance of ropy and dark-colored urine; thus, nine out of ten times I am called by some such words as these: "Doctor, it's his water!" However, this symptom and lack of control of hind limbs are only aspects and cause yet to find a plethora of nitrogenized constituents in blood. Directly connected with full rations and inactivity; a change from hard work to idleness—too little exercise—too much food.

There are several theories in regard to this disease which goes far back into history. In his *Hippopathology*, Percivall quotes a typical case which he called albuminuria. Haycock was the first man in England to write of it, and it was called hysteria by him, as he thought it occurred only in mares. As a matter of fact it is non-selective as to sex, but most often seen in heavy draft horses.

The appearance of free hemoglobin in the urine may accompany various affections in which the principal morbid phenomenon is hemoglobinemia. But as hemoglobin has a double source in the organism, red blood corpuscles on one side and the striated muscles on the other, we must distinguish two principal groups of diseases which are accompanied by hemoglobinemia and hemoglobinuria; alterations of the blood and alterations of the muscles. The dissolution of the red blood corpuscles are sometimes produced by true chemical poisons and sometimes by infectious matters, very probably micro-organisms.

Many investigators have held the microbial theory, and we must admit its plausibility. Lignieres found the Gram-positive streptococci in the subarachnoid fluid of the medulla and the kidneys; he found that 300 c.c. produced both paraplegia and albuminuria after the sixth day. Unlike most microbial diseases, the initial attack does not confer immunity, as subsequent attacks are liable to occur.

Hemoglobinuria was given marked attention by Cadeac. He concluded that it depended on auto-intoxication, and that the

hemoglobin in the muscles came exclusively from the muscles in the form of hemoglobin. The attack originates in the digestive organs and is facilitated by a temporary renal insufficiency which is aggravated by cold. Owing to these influences the oxidation of muscular glycogen is imperfect, the ferment which usually brings about this action is inhibited and organic acids are formed. When the striated muscles are exposed to violent irritations, phenomena of decomposition are produced in their substance, in the course of which the coloring matter of the muscle identical with hemoglobin becomes free and passes into the blood. In health the hemoglobin is not yielded to any of the tissues with which it comes in contact; altered conditions superimposing it may pass with excretory matter, as in the subject hemoglobinuria.

Dissolution of the red blood cell with liberation of the hemoglobin frequently occurs in a sufficiently marked form to deserve consideration as a distinct pathologic process. When cell destruction assumes an abnormal type it is usually spoken of as hemocytolysis or hemoglobinemia. The cells here involved are the erythrocytes primarily and when cell destruction involves both red cells and leukocytes, erythrocytolysis and leukolysis, the term hemolysis is the best description.

Of the many causes supposed to be active in the production of hemocytolysis, none explain satisfactorily the occurrence of the manifestation under all circumstances. The introduction into the circulation of large quantities of fluid may give rise to the destruction of normal erythrocytes. A list of infections might be given having this feature; bacterial products circulating in the blood may bring about the change. A long list of poisons possess the power; among them are some of the coal-tar derivatives. Extremes of temperature are causes, as are also poisoning with various fungi; the introduction of venom into the organism.

Whatever be the cause of cell dissolution, liberated hemoglobin may be excreted by the kidney, hemoglobinuria, as methemoglobin or oxymethoglobin or the latter may be converted into the former by more or less prolonged retention within the bladder.

A sufficiently protracted stay here may lead to the final conversion into acid hematin.

I do not find all authorities agree with Coplin as to the destruction of erythrocytes; however, so much of the phenomena of hemoglobinuria remains "uncharted seas" that we must look to the future for its technique to be made clear. At present it is enough to engage us to treat it successfully. I do not accept the dictum of Hanson that the "majority of the cases die," as I think a fairly large per cent of them have a fighting chance if treatment begins early enough. In this case the crux of the matter is getting them in time; if we are called at the earliest appearance of this disease, in my opinion, prognosis is favorable.

As the symptoms are broadly diagnostic and self-revealing to average practitioners, I do not think it worth while to take them up in this paper. But I do believe it is worth while to discuss our methods of treatment; and for my part, I give at the outset, a physic bolus, bicarbonate of soda, sanmetto and adrenalin chlorid; and if the patient is in very much pain and is excited I give chloral hydrate. I further resort to my psychology and try to make him understand that I am his friend, and I find an astonishing amount of help may be gained from him. If he can be induced to take a hopeful view of himself he begins to be promising.

Slings I use or not as indicated. Some horses find them a real help and others fight them, so I am ruled accordingly. I do not think it pays to use up a horse's remnant of strength fighting slings, better try to do without them.

Perhaps it is not altogether pertinent to this article, but I want to say a few words about Dr. W. G. Hollingworth's paper in the January, 1915, REVIEW. If I had my way, every veterinary practitioner in North America would get his January REVIEW, turn to page 431, and read every word slowly and carefully at least once in every week.

If I had my way, this article of Dr. Hollingworth's would be incorporated in the curriculum of every veterinary college in our country. Every candidate taking an examination to practice in

every State should be asked if he possessed a real friendship for animals and if he would always deal justly with them. It should be made very clear to him, that if he has not this friendship he will be rank poison to them. There is too much phariseism in the attitude of many people toward our noble dumb friends, and it might with profit be vigorously weeded out from a profession devoted to maintaining their health and treating their ills.

Many medical colleges still use the Hippocratean oath which certainly laid stress on the sanctity of life; our matriculates might start in with a reading of our fair-minded brother, Doctor Hollingworth's letter, keep up the habit of reading it through the intervening terms and graduate with quite a good bit of it ingrained.

Let us all get more ideas of the sacredness of life, the duty of preserving and protecting it. The Constitution insures us the right to "liberty, life and the pursuit of happiness," and we should extend it to take in these humble dumb friends who manifest the joy of living as truly as we when they are in health; and turn to our superior(?) intellect to care for their ailments. Suppose we all try to deserve their trust, and if life must be taken, do it in the most humane and painless way.

"I therefore beseech you, brethren, that you walk worthy of the vocation wherewith you are called."

PROCEEDINGS OF THE MISSOURI VALLEY VETERINARY ASSOCIATION: Through the courtesy of Dr. Richard F. Bourne, chairman of the publication committee, a copy of the above proceedings for 1914 reached the REVIEW office early in August. It includes the semi-annual meeting held at Kansas City, Mo., January 27, 28 and 29, and the annual meeting held at Omaha, Nebraska, July 6, 7 and 8, and is a creditable volume of nearly 300 pages. The papers and discussions make valuable instructive reading, and we congratulate the veterinarians of the middle west on their powerful organization.

MR. JAMES WILSON DEAD: Mr. James Wilson, for several years past registrar of the McKillip Veterinary College, died the first week in July, and has been succeeded at the veterinary school by Mr. Roy Lewis.

IODINE AND ITS APPLICATION TO LACERATED AND CONTUSED WOUNDS.*

By G. J. GOUBEAUD, D.V.S., FLUSHING, L. I.

About eight years ago I read an article in the *Therapeutic Gazette*, a journal published in Chicago, devoted to human medicine, in which the author advocated the employment of iodine and chloroform for disinfection of wounds before suturing them.

I have mislaid this article, otherwise I would give the author credit for it.

It appears that this human physician was employed by a firm which had a very large number of employees in a manufacturing establishment, and the cases of injury were numerous. Persons who were injured had in a large number of cases lacerated and contused wounds. All of these wounds were filled with grease and foreign matter, and the result was that no matter how much he would attempt to thoroughly wash the wounds and remove the extraneous material, his efforts were unsuccessful, and healing took place by pus-formation. We all know how difficult it is to thoroughly clean a lacerated or contused wound, and we know perfectly the difficulties that this physician had to contend with in his efforts to secure healing by first intention and also to lessen the number of complications. He employed iodine crystals in a chloroform solution. The results which he reported were most gratifying, and I felt that if he were successful there was no reason why I should not be.

The wounds from which animals suffer are no exception to those of the human body. We have the same conditions to contend with in so far as regards dirt and filth gaining entrance into them, and I, theretofore, decided to give this treatment a trial, and to say the least the results were most pleasing. I have seen wounds which were a combination of laceration and contusion, muscles torn and skin ragged; the exposed structures filled with

* Read before the Veterinary Medical Association of New York City, June, 1915,

dirt, grease and other foreign matter, and I applied iodine solution after as much foreign matter as it was possible to remove had been removed; thoroughly dried the wound with absorbent cotton and then applied again liberally the iodine solution. The only antiseptic that was employed later on was a weakened solution of the iodine, and I wish to state here that the results have been uniformly successful. The wounds healed most rapidly and there was usually no pus-formation, and when this did occur, the injection of iodine in mild solution caused the clearing up of the wound.

Large wounds that would ordinarily take from a month to six weeks, if not longer, to heal so that the animal would be able to work, now heal in from ten to twenty days.

Ulcerating wounds and those wounds and sores caused by collar and saddle galls and bruises heal most rapidly after the application of iodine.

I am the veterinarian for the First Cavalry, National Guard, New York, and during the maneuvers it was common for me to dress twice a day, sometimes more often, from 50 to 150 sore backs, withers and forearms. These wounds were caused by the saddle or girth, large stick-fasts resulted, which in some cases were so severe as to incapacitate about 50 per cent. of these horses for further work. Those who have had any dealings with pack animals know to what extent these wounds will incapacitate an animal, and they also known too well the complications.

At our annual maneuvers the only thing I dreaded was the wounds caused by saddle and girth, and I knew that for two or three months after some of these cases would have to be seen and treated daily. The various lotions, sedatives, antiseptics and healing powders were employed, but they were not only in some cases of no use, but in a very large number of cases they aggravated the condition to such an extent that I believe a large number would have recovered if only plain water were employed. I believe that some of these healing powders which were employed by me made the wounds at least ten times worse and larger than they would have been had I not employed them.

After reading this article I determined to try iodine and iodized vaseline, and I am happy to state that the maneuvers have no more terrors for me. It is rare that we have a wound that does not heal and leave no evidence of its existence within ten days after its infliction. Iodine now in the regiment must be in each medicine chest for each individual troop, and upon the first evidence of chafe this agent is immediately applied. When his subject is first looked at, the application of iodine in chloroform, or the simple tincture as I now employ, appears to be heroic.

The idea of painting over and saturating thoroughly a wound, adding foreign bodies to a wound, and applying an agent as powerful as iodine seems to be very very drastic. We are all taught that foreign material must be removed from cell structure before union will take place and that the application of any foreign matter will prevent healing, and union by first intention will not take place, but, let us not discourse upon what we think in the matter, but apply iodine thoroughly to a wound, suture it, if necessary, use little or preferably no water, and note the result.

I have had a wound 18 inches long, lacerated and contused, filled with foreign matter, painted with tincture of iodine, sutured and dressed with tincture of iodine daily. The wound healed rapidly, no pus-formation took place, and the animal was placed to work exactly fourteen days after the accident occurred.

It is not my intention to discuss the physiological results of this agent, but simply to present a practical paper to you for your consideration.

Any kind of a wound, no matter where, paint it with iodine, and if upon the foot, which will have to be protected, place absorbent cotton and bandage upon the same, leave the animal alone, and note the rapidity with which healing takes place.

In this locality where my practice is, tetanus is one of the commonest affections that I know of. A case in point might serve to bring out the beauties and good effects of iodine when properly employed.

Septicemia and tetanus will not occur if this agent is employed liberally to wounded or abraded surfaces. This case will serve to illustrate it.

A client of mine had a horse that stepped upon the sharp point of a harrow. The prong entered the point of the frog and came out below the fleshy part of the heel. There was an abundance of dirt in this wound. The animal bled profusely and the frog was almost half torn from its sensitive structure. A canal extended from point of frog to the fetlock. My probe could feel sand and dirt in this opening—I flushed this canal thoroughly with tincture of iodine, applied an absorbent cotton compress and injected the animal with 1,500 units tetanus anti-toxin. The driver of this horse, in his efforts to remove the harrow, stepped upon one of its teeth and punctured the sole of his foot. This man gave the wound such attention as he deemed necessary and went on about performing his labor. Seven days afterwards this horse was put to work, and exactly twelve days afterwards this man died from lockjaw in the Flushing Hospital.

This is not an exceptional case, but it might be well to state that I had a similar case in which the animal ran away and fractured the os corona of left hind leg, and had a slight lacerated wound upon the right knee. The fractured pastern was placed in plaster of paris, the wound which was filled with dirt from the hothouse beds had been washed thoroughly, then dried, and iodine applied twice a day. The workman, who was a foreigner, was arranging the sash in this hothouse and he cut his foot. Little or no attention was paid to it. Two months afterwards the injured horse was put to work. Fifteen days after the accident to the horse and also the accident to the man, the man developed tetanus and died. It might also be well for me to state that I have yet to have a case of tetanus result from a wound in which I was called upon to attend after I first saw it.

I attribute my success to the employment of iodine, and whenever I deem it necessary, tetanus anti-toxin is also injected.

DR. LYCLE REAPPOINTED: We learn from the Portland, Oregon, *Journal* of the reappointment of Dr. W. H. Lytle as state veterinarian of Oregon. We congratulate the doctor.

ATROPHY OF THE SHOULDER.*

By W. L. CLARK, D.V.M., SENECA FALLS, N. Y.

The shoulder, though so well covered with its muscular envelope, is often the seat of injuries which, from the complex structure of the region, become difficult to diagnosticate with satisfactory precision and facility.

The flat bone which forms the skeleton of that region is articulated in a comparatively loose manner with the bone of the arm, but the joint is rather solid and powerfully strengthened by tendons passing inside and in front of it.

Still shoulder lameness or sprain may exist, originating in lacerations of the muscles, the tendons or the ligaments of the joint, or in diseases of the bones themselves.

The identification of the particular structures involved in these lesions is of much importance, in view of its bearing upon the question of prognosis. For example, while a simple superficial injury of the spinatus muscles, or of the muscles by which the leg is attached to the trunk, may not be of serious import and may readily yield to treatment, or even recover spontaneously and without interference, the condition is quite changed when a case of tearing of the flexor brachii or of its tendons as they pass in front of the articulation occurs, or what is still more serious, if there is inflammation or ulceration in the groove over which this tendon slides, or upon the articular surfaces or their surroundings. In all these cases atrophy will occur.

In chronic bursitis intertuberculosis the inflammatory symptoms are wanting, though there is inability to place weight on the leg and the forward stride is shortened. When the disease appears bilateral, atrophy and contraction of the muscles occur.

The common effect of all lameness and disease of a limb is a wasting of the muscles connected therewith. Therefore, in all sprains entailing inflammation and continued disease of a limb, and in all injuries entailing chronic, long-continued manifesta-

* Read before the Central New York Veterinary Medical Association at Syracuse, June, 1915.

tions, there will be wasting or atrophy of the muscles, and, in extreme cases, sometimes a permanent contraction, even of the cords of the limb. This is popularly called sweeny. It is the result of disease and not the disease itself.



No. 1—Swelling in forearm three days after injection.



No. 1—Another view of forearm three days after injection.

The cause of this wasting must therefore be looked after in order to diagnose the difficulty.

Some of the causes of sweeny are usually acquired by young horses when first put to work from overstrain, or it may occur in horses of any age from hard pulling or uneven ground by stepping into holes, etc., thus causing injury to the muscles of the shoulder and particularly those supporting the joints.

The supra-scapular nerve is injured to a large extent by hard pulling, contusions, strains, etc., and thus, by injuring the nerve, the supra-spinatus and infra-spinatus become affected and atro-

phy takes place. The supra-scapular nerve, as it bends around the interior border of the scapula, is the place where most of the tension comes on it.

In atrophy of the shoulder sometimes the horse may be able to walk or even trot without serious difficulty. If one stands directly in front of him there will be seen that the affected shoulder is held in an unnatural position, seeming to be rolled outward farther than normal. There will be a peculiar motion in the gait, and that tenderness and swelling will occur sometimes on the outside of the joint.



No. 2—Atrophy of the muscles before injection.



No. 2—Ten days after injection.

"Sweenied" shoulders are more often due to disease below the fetlock than to affections above the elbow. Atrophy of the paralyzed muscles occurs later, and is most marked in the supra-spinatus, infra-spinatus and two teres muscles.

Treatment.—Shoulder lameness with no atrophy will in many cases disappear with no other prescription than that of rest, provided the lesions occasioning it are not too severe. Time is all that is required.* In mild cases of shoulder lameness the indications are sometimes showering with cold water, while other indications require warm wet blankets and anodyne liniments.

With atrophy of the shoulder I find a solution of 10 grains of silver nitrate to 1 oz. of distilled water injected subcutaneously will bring results quicker than anything else. I inject about 1 dram in the atrophied muscles every 10 inches and rub well.

After 24 hours the muscles become swollen and animal becomes quite sore and lame. The swelling subsides in about ten days and leaves shoulder full and nearly all lameness has subsided.

I have used turpentine, veratrine, salt and ether, but my objection to these is that they occasionally produce violent local action and necrosis of the soft tissues, and their employment is dangerous.

(Continued from page 694.)

Comparing the cost of transportation, it is boldly asserted that "ton for ton, except under extraordinary conditions or particularly long hauls, goods can be delivered cheaper by horse-drawn vehicles than by auto trucks, and with very much less investment, and practically free from the annoyances that so frequently attend the use of motor trucks. It costs as much to house a truck as it does to keep a horse; a chauffeur is more expensive than a driver; gasolene is an added expense; the care and cleaning of the automobile is an item. In place of shoeing bills you have the tire bills, which are over one hundred per cent. more expensive than horseshoes. Then there are other outgoes and complications, such as lubricating troubles, broken spark plugs, stripped gears, etc.

"We have on our mailing list in Philadelphia 2,000 users of over 20,000 horses. These are live, wide-awake, progressive business people. If the advantages of the auto truck were anywhere nearly as bright as the salesman sometimes pictures them, would these hard-headed, practical people be using 20,000 horses? In a recent circular letter from the Studebaker Corporation of

(Concluded on page 728.)

SURGICAL TREATMENT OF FIBROMAS.*

By R. R. DYKSTRA, D.V.M., SURGEON AND CLINICIAN, DIVISION OF VETERINARY MEDICINE, STATE AGRICULTURAL COLLEGE, MANHATTAN, KANSAS.

I.—WARTS OR FIBROUS TUMOURS.—*Location.*—These growths are most commonly found on young animals, being located on various parts of the body and particularly on the under surface of the abdomen, the genitals and mammary gland, lips and eyelids.

Appearance.—As a rule their appearance is that of a raw, easily bleeding growth, projecting above the surrounding skin, varying in size, generally having a large base, though this may be constricted. On section they may be quite soft, especially when the cellular elements predominate. Or hard and glistening when the fibrous elements are in the majority; between these two we have various gradations. They are classified as benign unless by their encroachment upon a vital organ they threaten to interfere with, or destroy the functions of the latter.

Treatment.—Ligations, torsion and the application of escharotics have been favorite methods of treating these growths. While these methods are successful in removing them they almost invariably recur.

On the other hand, if they are excised by making the incision in the healthy tissue surrounding the tumour, at the same time carrying the incision deep enough so as to get under the growth, we are reasonably certain to remove all of the diseased tissue. Furthermore, if this is immediately followed by the liberal application of from 25 to 50% formalin (this corresponds practically to a 10 or 20% solution of formaldehyde) we absolutely prevent their recurrence. The formalin acts as a disinfectant and in a few hours will have formed a thick firmly adherent scab under which healing takes place very rapidly, and as a rule without additional attention. I make it a practice, however, to supply the owner with some formalin of the proper strength, and instruct

* Read before the Missouri Valley Veterinary Medical Association at Kansas City.

him to apply some whenever the scab becomes so loose that it can easily be removed; this latter condition indicates that the scab has become undermined with pus. It is essential that as soon as this is noticed, that the scab be entirely removed, and the formaldehyde solution reapplied, when healing usually takes place very rapidly. It may be necessary to make a third and even fourth application of the diluted formalin, or every time the scab becomes loosened, but if this is rigorously carried out the tumour will not recur.

II.—SUBCUTANEOUS FIBROMAS, OR COLD ABSCESES OF THE SHOULDER.—*Cause.*—They are almost invariably due to the imprisonment of pus in the deep-seated inter-muscular structures. The pus is as a rule too deeply seated to find its way to the surface, it acts as an irritant, resulting in enormously thickened fibrous walls.

Symptoms.—A well circumscribed subcutaneous tumour, non-inflammatory in character when in a quiescent state, but very responsive to external irritation such as rubbing of the harness, and exhibiting at these times all the phenomena of an acute inflammation. It is this latter condition that renders them such a source of annoyance, because, in the majority of cases, no sooner is the horse worked in the collar, than the otherwise innocent appearing swelling becomes hot, swollen and painful with the result that the animal must be laid off for several days. This is liable to recur time and again.

Treatment.—I believe that it is quite useless to attempt their reduction by the use of external stimulants such as iodine or blisters, therefore I have adopted the following line of treatment.

A local anaesthetic is employed, injecting the same under the skin, and around and under the base of the tumour.

The animal is cast in lateral recumbency. The seat of operation is shaved and thoroughly washed with soap and carbolized water, then rinsed with alcohol, and painted with tincture of iodine.

All instruments, suturing material and drainage tubes are

boiled in a solution of sodium carbonate. For a drainage tube a piece of rubber tubing having an internal diameter of at least one-fourth inch, about two inches longer than the wound, with numerous orifices along its sides, is very good. The operator's hands should be aseptic.

An elliptical incision is made over the tumour and the latter completely removed; this is indicated by the appearance of healthy tissue. It is more preferable to remove some of the latter than to allow any of the diseased tissue to remain. All hemorrhage must be absolutely controlled, preferably by searing the wound lightly with a rather more than ordinarily hot iron, because an insufficiently heated iron will adhere to the surface over which it is passed, breaking down the crust as rapidly as it is formed. If the hemorrhage is not completely controlled, I do not believe it probable that the wound will heal by first intention.

The drainage tube is placed in position, being held there by a suture; it should project about two inches beyond the lower part of the wound. The edges of the wound are held in position by deeply placed tension sutures of strong braided silk in the form of a mattress suture, and over-stitched with interrupted coaptative silk sutures. The entire wound is then thickly covered with an impervious dressing of iodoform collodium. If the drainage tube becomes clogged up at any time it may be carefully flushed out with a normal salt solution. Strong antiseptics are to be avoided as they cause more irritation and destruction of new tissue, than good.

The animal's head should be tied high and fed from a high feed box, as otherwise the constant bending downward serves to prevent healing by primary union.

At the same time care should be taken that the operated area cannot be rubbed, as a good operation can be rendered useless in a few minutes by such a procedure. In about five to seven days the edges of the wound will have united, the sutures and drainage tube may be carefully removed, the former at intervals of a few days, and at the end of three to four weeks healing without a scar will be complete.

Undesirable Sequelae.—Infection of the wound, imperfect coaptation of the edges of the wound owing to failure in making incisions "clean cut" and negligence in proper control of the patient after the operation, will result in failure of the wound to unite by first intention. There results then a large, open, granulating wound, more undesirable than the primary condition and leaving in its wake a poor collar bed, and a disgruntled client.

By properly cleansing the wound, refreshing the edges, and proper control, it is still possible, though not probable, to get primary union. Painstaking work, carrying out every step carefully will result in success.

(Continued from page 724.)

South Bend, Ind., to its sales department heads the following information was included: 'We have all had an opportunity to see the auto trucks go to pieces faster than any other investment we have ever known. The big cities of the East, which caught the disease first, have naturally been the first to pay the price and the first to recognize their error. The user who has to pay the bills has learned how expensive the auto truck really is."

It will be interesting to those who have not kept in touch with the facts to know there are, according to the Bull's Head people, more than 100,000 horses now in use in Philadelphia and more than 680,000 in the state of Pennsylvania. It is stated that "more horses are used for delivery service in Philadelphia to-day than ever before."

Statements from more than fifty users of horses complete the case for the defense of the horse. Among them are such concerns as the National Biscuit Company, the United States Express Company, the Sulzberger & Sons Company, Gimbel Brothers, the Newton Coal Company, which uses 835 horses; the American Ice Company, with 980 horses in Philadelphia; the Union Traction Company, the Adams Express Company, Frank Curran, with 300 horses; James D. Dorney, with 325 horses, and the Crystal Ice Company, with 212 horses. These and many other representative concerns are quoted as saying their experience has been all in favor of the horse.—*New York Herald.*
—(*The Horseman.*)

REPORTS OF CASES.

CASE REPORTS FROM CATTLE PRACTICE.*

By JOHN F. DE VINE, D.V.S., Goshen, N. Y.

CASE I.—*Pink Eye or Keratitis Contagiosa, Cattle.*—In reporting an outbreak of this disease in cattle which I had the good fortune to see in consultation with Dr. Ralph Jenks, of Ossining, some time ago, I do so particularly for the benefit of the younger veterinarian.

Notwithstanding the fact that some authors report it as being rather a common disease of cattle, I have never seen but two outbreaks of it in the twenty years that I have been interested in veterinary practice. The first outbreak was a few cases in a small herd at the time I was a student, and its true nature was then not recognized by the veterinarians of the locality.

It seems probable that it is rather prevalent in the West from reports we see now and then in veterinary periodicals, but in my opinion it is a rare ailment with us in this State. If I am in error and it is more prevalent than I suppose, I feel that the disease is of sufficient importance with its attendant dangers to pure-bred and show cattle to warrant a discussion before this society, so that our country practitioner may be able to make a prompt diagnosis and apply early treatment which is so essential for satisfactory results to the owner of high-priced cattle.

I have reviewed such literature as I have, both by American writers and translations from foreign authors, and I must confess that the best article I have been able to find on this disease was recently published in the little periodical "*Helpful Hints to Veterinarians*," put out by the Abbott Laboratories. I here quote that article, since in my judgment it describes the onset and symptoms of the disease pretty accurately.

"*Pink Eye or Keratitis Contagiosa, Cattle.*—This rather common disease of cattle is more frequent in the summer season and particularly during a dry period. Whether the dust or pollen increases the irritation or whether the disease is transmitted by flies does not seem to be definitely determined. The disease occurs at all seasons of the year but is more common in the late summer or early fall.

*Paper presented to the New York State Veterinary Medical Society, at Ithaca, August, 1915.

"As a rule the first symptom noted is a discharge of tears from the infected eye. In white-faced cattle the dust collects on the moist hair and shows a dirty streak extending from the inner canthus of the eye downward. The eyelids are swollen and partially closed to protect the eye from light, as there is marked photophobia. In the early stages a small red spot shows on the cornea that develops into an ulcer. The inflammation gradually extends and gives rise to the common name, 'pink eye.'

"During the acute stage the inflammation is usually so severe that the animal is temporarily blind. In some cases both eyes are attacked at the same time.

"The ulcer may weaken the cornea so that the pressure of the aqueous humour may rupture it. Some cases may be permanently blind in one eye and occasionally an animal is left totally blind.

"As soon as a case of contagious keratitis is found it should be isolated and placed in a dark stall. A. conjunctivitis tablet solution should be dropped into the affected eye three times daily and the eye sponged with cloths wet with cold water are beneficial. Laxative feed and fresh water should be supplied conveniently, as in many cases cattle cannot see to find food or water and they fall away rapidly in flesh. With this treatment thoroughly carried out cattle will make prompt recovery."

I repeat that this article gives more comprehensive, descriptive detail of the disease than anything I have been able to find in our text books and conforms very closely with notes I have made of the cases in question. My notes follow.

At the request of Dr. Jenks I accompanied him to the farm of Mr. B. at Yorktown Heights, Westchester Co., N. Y., to investigate a disease which was affecting the eyes of several of Mr. B.'s cattle, apparently infectious in character.

I found upon arriving at the farm, 13 cows, and two oxen in one field and a Jersey bull tied to a stake separate and apart from the other animals. Eight cows and the two oxen with the bull showed evidence of eye trouble, varying in intensity anywhere from a small pin point, circumscribed, cloudy opacity on the cornea, to an extensive keratitis complicated with either staphyloma or ulcers of the cornea, or both; and in one case, entire destruction of the latter membrane. The animal first attacked with the disease was neglected, the herdsman not thinking it of a serious character, consequently the entire cornea had become opaque, showing on its surface several ulcer scars. This

particular animal was still suffering with intensive conjunctivitis, but none of the other animals in the herd showed any evidence of conjunctivitis as a complication.

The history of these cases is as follows: A Jersey cow which had been recently purchased from a party living near Mt. Kisco had shown evidence of the disease about a month previous to my visit. Other animals of the herd began to develop similar conditions, in anywhere from four to five days, when Dr. Jenks was called, and thinking the disease perhaps due to traumatism or irritants, prescribed accordingly. The treatment gave evidence of immediate benefit but the ailment continued to spread to all the animals in the herd and they were put under treatment.

The fact that the various infected animals in the herd were handled and treated by the same attendant, who also began treatment of the bull, would explain the infection in his case even though he had been kept apart from the rest of the herd.

In all cases in which treatment was begun early the disease was confined to a very minute opacity of the cornea, such opacity being usually situated at or near the infero-external margin. The location may or may not have any significance. The cases which had become more advanced before receiving due attention seemed to have a duration of about two to four weeks. At no time did the physical condition of the animal seem involved. The temperature, appetite and other functions remained normal.

The conclusions were that this was apparently infectious keratitis; that its period of incubation was between four to ten days; that the duration of the disease when properly treated is from two to four weeks, and the prognosis, when proper treatment is applied early, is good, but when neglected is quite apt to lead to ulcer of the cornea, followed by dense opacity and destruction of the vision.

I have consulted various text books treating on diseases of the eye, but none of them seem to mention *Infectious Keratitis*, always referring to it as traumatic or secondary to other affections of this organ.

Measures adopted to prevent further spread of the disease were: Separation of the affected from the non-affected; thorough disinfection of the stable where the animals were kept and had been driven to be milked, with additional instructions as to due precautions of handling the separate herds by separate attendants, and the proper disinfection of the hands and outer clothing of the attendant caring for the infected herd.

In addition to this a colyrium of boracic acid, permanganate of potash and distilled water was used several times daily. I also recommended to have clean pieces of gauze or cheesecloth rung out of a salt solution to cover the eyes, and the animal kept in a dark stable during the day. I might add that the later treatment of covering the eyes with a cloth or gauze rung out of salt solution is a method that every country veterinarian will find valuable in practice in most eye troubles.

CASE II.—Death in a Valuable Cow Due to the Bacillus Necrophorus Affecting the Liver with Slight Lung Involvement.—I report this case as being one of unusual interest to me and also from the fact that after diligent search and inquiry I have been unable to find any literature on a similar case. If there are reports of similar cases on record I would greatly appreciate it if someone present would give me accurate reference to such an article.

I appreciate the fact that some authors refer to the different pathological conditions produced by the *Bacillus necrophorus*. Herzog, quoting Ostertag and Bang, enumerates the following pathological conditions in which it may be found: "Diphtheria in calves; Furunculous of cattle; dry gangrene of the udder of cows; multiple necrotic feci in the liver of cattle; multiple abscess in the liver of cattle; diphtheritis of the uterus and vagina of cows; diphtheritic necrosis of the small intestines of calves; embolic pulmonary necrosis in cattle; embolic myocardial necrosis in cattle; wound necrosis in cattle; necrosis of the hoof cartilage of the horse; diphtheria of the intestines of the horse; diphtheritic necrosis in the mouth, nose and intestines of hogs; multiple necrosis of the liver of sheep; multiple necrosis of the liver of mules."

Of multiple liver abscesses of cattle he states the following: "Multiple necrotic feci or multiple abscess sometimes as large as an apple and even larger are frequently found in the liver of cattle. They are surrounded by a tough, fibrous, connective tissue capsule, and contain a very tenacious, thick, generally greenish, non-fetid pus in which there is much granular necrotic material. In it bacillus and filaments are found which by culture and inoculation experiments can be identified as the *Bacillus necrophorus*. Occasionally the bacillus is associated with the *Bacillus pyogenes bevis*."

I think you will agree with me that such meagre information would be of little assistance in diagnosing a case similar to the one I wish to report.

The animal in question, a valuable Holstein cow having a record of 32 lbs. butter fat in one week, was owned on a farm some distance from my office where the regular veterinary work was done by a local man, but where my services were sought occasionally as a consultant. I had given much attention to the eradication of tuberculosis from this herd, and the fact that I believed this animal free from tuberculosis was of great advantage in trying to arrive at a diagnosis, and at the same time a great anxiety, since the owner had spent thousands of dollars at my suggestion to rid his herd of this scourge, my directions having been carried out to the letter. Had this animal proved to be tuberculous it would not only have shattered the owner's faith in my ability, but would have wrecked his confidence in tuberculin and our present knowledge of the control of tuberculosis.

Several times throughout the short illness the probability of tuberculosis was mentioned, but since it had taken several years to convert the owner to the possibility of a tuberculous-free herd I decided to stand firm at the helm and pin my faith to the teachings I had been advocating, still arguing with the same positiveness, that I believed we had eradicated tuberculosis from the herd, which of course included this animal. I will admit that it required some courage and it may have been bad policy to wager so much on tuberculin when we know so well the possibilities of its vagaries, but it was the only stand to take with this man, and as will be seen by the symptoms enumerated that the character of the ailment also lent me courage. The history is as follows: The animal had recently been subjected to a butter-fat test with the usual heavy feeding and frequent milking, as is customary in such cases, finishing the test with apparently no untoward results. Suddenly there was loss of appetite, bowels became constipated, which was shortly followed by a vile smelling, black, tarry bowel discharge, temperature 105, great depression, grating of teeth, evidence of abdominal pain, but not over the region of the liver, animal even laying and resting comfortably at times on the right side. No discoloration of the mucous membranes.

Diagnosis.—*Mycotic gastro-enteritis*, mentioning, however, the fact that a single case under such conditions as these animals were kept and fed was not in keeping with my usual experience.

We administered oil and creolin, followed by stimulants and intestinal antiseptics, withheld all feed for 48 hours, when the animal showed a pronounced improvement, temperature returning to normal and eating a little alfalfa and drinking a little gruel.

The prompt response to treatment coupled with the symptoms seemed to justify our diagnosis. Unfortunately improvement was only temporary, as the animal again showed extreme depression on the third day. Nuclein given hyperdermically six to eight hours apart was then added to the other stimulating treatment, this again built up our hopes as the animal became brighter, extremities and horns warmer, but finally collapsed and died on the fourth day.

I told the owner that it was my judgment that there must be some chronic organic trouble associated with this acute attack or the animal should have recovered after rallying as she did under the treatment she received, but her splendid physical condition prior to this illness would seem to contradict any serious organic trouble other than tuberculosis, and to this I would not give credence; consequently we all desired an autopsy.

On Autopsy.—All organs apparently in a normal condition excepting the liver, lungs and intestinal tract; the latter showed congestion throughout. The trachea and larger bronchii were filled with a frothy mucus, the lungs were hyperemic and emphysematous, the left lung containing a small diseased area very similar in character to those found on the liver. The liver was adherent to the diaphragm and rumen and greatly hypertrophied, weighing approximately 80 lbs. and literally filled with diseased spots which I believed to be due to the *Bacillus Necrophorus*.

I told the owner and superintendent that I did not wish to leave any possibility of error in the diagnosis in this case, and that, while I was satisfied that the lesions were not tuberculous in character, still I wished a laboratory examination made so that no future doubt could ever arise, and I requested them to name the laboratory to which a section of the liver should be sent. Their choice was the Bureau of Animal Industry at Washington, D. C.

We accordingly immediately packed in ice a section of the liver and forwarded it to Dr. Mohler at Washington, at the same time giving him the history by mail.

In a few days I received the following reply:

Bureau of Animal Industry,
Washington, D. C.,
April 25, 1913.

Dr. J. F. DeVine, Goshen, N. Y.:

Sir—Replying to your letter of April 23 you are advised that careful microscopic examination failed to demonstrate the pres-

ence of any tubercle bacilli. The necrotic areas of the liver were found, however, to contain large numbers of necrophorus bacilli in practically pure culture. In view of the heavy infection with the organism of necrosis it is probable that the hypertrophy of the liver was caused by the action of the toxins produced by rapidly multiplying bacilli in the lungs and liver and the sudden death of the animal may have been brought about by collapse following the absorption of excessive amounts of these toxins, which possess extraordinary potency in the case of necrophorus infection.

Very respectfully,
J. R. MOHLER,
Chief, Division of Pathology.

A CASE OF EROSIONAL OSTEO-ARTHRITIS IN A CALF.*

By S. A. GOLDBERG, Pathological Laboratory, New York State Veterinary College, Ithaca, N. Y.

Fibrinous synovitis (*Synovitis fibrinosa sicca*) is, according to Kitt, frequently found in cattle; in the old due to articular rheumatism; in the young, as a partial symptom of pyemic conditions, such as navel ill and white scours. Cattle are predisposed to plastic exudations, so that even in inflammations due to true pyogenic causes, an exudate of a marked fibrinous nature is usually found.

The fibrinous synovitis is as a rule polyarticular. The articulations are very slightly swollen, the swelling hardly noticeable, the capsule barely changed, the articular cartilage smooth and transparent, *i.e.*, normal. There may be slightly reddened spots in the synovial grooves; but in the articular cavity are found flat, pressed fibrinous clots of a rather hard and tough elastic nature resembling pseudo-membranes. These are found lodged in the angles and pockets of the synovial membrane and contain reddened tufts. These fibrinous masses occur also as whitish yellow or yellowish grey lumps, often resembling lumps of fat. They can be raised with the finger and appear as a flat stringy network.

After repeated or protracted sero-fibrinous arthritides, an erosive arthritis results which is characterized by a destruction of the cartilage. It appears either as if the cartilaginous articular surface is removed by caustics, or as if the cartilage becomes

* Reprinted from the *Cornell Veterinarian*, July, 1915.

perforated. On the eroded bone, are projections of red tuft-like germinations of the vascular marrow tissue; and on the synovial membrane such villous vegetations may grow and be deposited upon the articular cartilage.

This arthritis is either the so-called dry arthritis due to the fact that but a few drops of yellowish synovial fluid is found in the articulation, or is that form of arthritis where there may be pocket formations of the articular capsule, filled with a thickened gelatinous or fluid substance. In the case of dry arthritis there was, in a previous attack, an excess of serous exudate which has been resorbed and removed. On account of the chronic nature of the process, the capsule is uneven, surrounded by whitish connective tissue, gelatinous streaks and reddish fibroblastic tissue. The articulation is spindle shaped and greatly enlarged.

In the macearted specimen, the places where the cartilage was injured and the marrow tissue had germinated, appear as eroded depressions with dentated borders, as if they were bitten off. The ground, *i. e.*, the naked bone, is rough, resembling pumice stone. This is the form of inflammation that leads to fibrous and osseous ankylosis. Most authors are of the opinion that the inflammatory process begins subchondrally in the osseous spongiosa, and that later, by extension, the cartilage becomes affected.

Before the cartilage becomes eroded, it loses its lustre. It takes on a dull, velvety uneven appearance and, on account of the shining through of the hyperemic spongiosa, it appears bluish red. The nutritive disturbances from which the cartilage suffers (chondromalacia) is characterized by the fact that it is exfoliated in hairy, feathery or thread like masses which are capable of floating on the surface of water. The dissolution occurs at first in places subject to greatest pressure, at the so-called closing border of the articulation (Eberlein). In joints where intermediate cartilages are present, these, also, may become eroded.

Post Mortem Notes. Calf, female, 10 weeks old, known as Post Mortem No. 30.

Just prior to death the calf was unable to rise; the head, when stretched out, fell back on the neck. Many of the joints were movable with difficulty. There was gritting of the teeth.

The animal was killed by chloroform and bleeding; autopsy was performed immediately. She was in poor condition. There was no subcutaneous or omental fat. The stomach and intestines were apparently normal. There was very little material in the intestines. The lungs were apparently normal. In the heart

the pericardium was adherent to the epicardium by fibrous adhesion; no fluid was observed in the pericardial sac. There were scattered hemorrhages in the pericardium. In the kidneys the cortex was pale while the medulla was reddish, congested. Microscopically it appeared to be acute parenchymatous nephritis. The liver was pale, yellowish brown with lobules apparent; on section, it was pale. Microscopic examination showed it to be acute degenerative hepatitis.

In the right leg, the coxo-femoral joint was filled with a large number of free bodies, whitish with a slight greenish tinge, somewhat resembling fat. On the head of the femur there was an erosion 3 c. m. in diameter, but a narrow rim of cartilage 5 m. m. wide remained on the external side. The synovial membrane was thickened by papillary and flaky masses projecting into the articulation. Most of these were yellowish but a few had a reddish appearance. The corresponding cotyloid cavity has lost its normal appearance; the cartilage appeared to be entirely gone. In its place was found a flaky substance, easily raised. The denuded surface of the bone beneath this fibrinous mass was reddened and rough.

Microscopically, the articular cartilage showed different stages. A few cells, in several places next to the bone, were nearly normal. In these the nuclei were stained blue and the cell body a lighter blue, with hematoxylin and eosin. As they approached toward the articular surface, the cells gradually became smaller, the blue stain disappearing from the cell body. The nuclei also were becoming smaller, later being represented only by blue granules until finally, nearer the articular surface the cells appeared homogenous and of a pink color, with the nuclei entirely absent. The bone immediately underneath was gone; its place having been taken by newly formed capillaries, surrounded by fibroblasts with here and there an area of leucocytes. Further away, in the remaining bone, facunal absorption has taken place. The Haversian canals were enlarged, of an irregular shape, with the concentric lamellae gone, and lined with osteo-clasts. The lacunae were filled with leucocytes, giant cells, fibrin and a few fibroblasts. The vessels were distended with blood.

The stifle joint was somewhat reddened, otherwise, it was apparently normal.

In the hock joint, the capsule was thickened by a growth of fibrous tissue which was covered with fibrin. On the astragalus there was an erosion of a greyish red color in the furrow of the

trochea, about 3 c. m. x 2 c. m. in size. There were punctiform hemorrhages on the external lip of the condyle, the cartilage in that area being slightly roughened and lustreless. Similar change were found on the corresponding surface of the tibia. The remaining articular surfaces of the hock joint were of a bluish red color, otherwise, apparently normal.

The fetlock joint was somewhat redder than normal.

In the right fore-leg, the scapulo-humeral and the humero-radial joints were somewhat reddened, otherwise, apparently normal. Section of the humerus showed the marrow in the middle part of the shaft to be grayish, that extending about 2 c. m. from the epiphysis, very soft and deep red.

The radio-carpal joint was enlarged and congested on the outside. The synovial membrane was thickened, the inner part containing shreddy, flaky and whitish detritus. In the anterior part of the joint there was a deposit of a greenish white, flaky material. The distal articular surface of the radius showed punctiform hemorrhages; the cartilage was slightly roughened and lustreless. There were many small erosions on the intercarpal cartilages, the largest one, on the os magnum, being 1 c. m. by 6 m. m. The eroded surface was of a brownish gray color.

In the carpo-metacarpal joint, there was a growth of soft fibrous tissue from the anterior or synovial membrane. This was about 5 m. m. thick extending into the joint a distance of 1.5 c. m. The distal 5 m. m. of this growth was greenish white.

In the metacarpo-phalangeal joint, the cartilages were smooth and shiny but redder than normal. There was a little reddish, coagulated material in the middle of the joint. The synovial membrane in the metacarpal part was reddened (congested) and thickened with a greenish white material extending into the joint for about 1 c. m. being about 5 m. m. thick.

In the left hind leg the coxo-femoral joint was apparently normal. The stifle joint contained a viscid purulent fluid; the synovial membrane was thickened and the joint capsule was filled in front and behind with a greenish white flaky fibrillated material. On the internal lip of the trochlea, there was a roughened area 4 c. m. long by 1.5 c. m. wide, studded with depressions ranging in size from a pin point to a pin head. The corresponding inner half of the patella was thickly sprinkled with similar rounded, red erosions, none of which exceeded 5 m. m. in diameter. The cartilage of this half was of a bluish tinge. The other half of the patella contained a few similar red erosions. On section, the bone of the patella appeared porous, the cartilage

on the most affected part very much thinned and the bone beneath this for an area of 12 m. m. appeared necrotic. On the less affected half, the cartilage appeared of normal thickness and color, but with reddened points in the surface.

Microscopically, the articular cartilage showed a gradual transition from nearly normal to entirely necrotic. Thus there were areas of cartilage cells taking the characteristic blue stain, areas where the cartilage was vascularized, areas where the nuclei were large but the cell bodies took the eosin stain and finally areas where the nuclei are represented by one or two blue granules, the cell bodies appearing pink. In one place the cartilage was entirely absent, its place being taken by a homogeneous material, apparently fibrin. Under this area, instead of osseous tissues there is granulation tissue, with here and there an area of leucocytes and some fragments of necrotic bone and cartilage. There were numerous fibroblasts, fibrous connective tissue cells, newly formed capillaries, a good deal of fibrin, circumscribed areas of leucocytes and embedded in this mass pieces of undissolved bone and necrotic cartilage. This was the area that microscopically appeared necrotic. Further away from the articular cartilage the bone presented the changes of lacunar absorption. The Haversian canals were enlarged, of an irregular shape and their concentric lamellae were absent. They were lined with osteoclastos and filled with leucocytes, fibrin, fat droplets and a few giant cells (*ostitis rarefaciens*). The vessels were distended with blood. A few fibroblasts were also present in these canals. The synovial membrane was greatly thickened (13 m. m. in its thickest place), 11 m. m. of which consisted of greenish white flaky material, the outer 2 m. m. of white fibrous tissue.

Other joints of the left hind leg were apparently normal.

In the left fore leg the carpal joint was enlarged, the capsule thickened, containing purulent exudate in the lower part. In the middle part, the capsule was thickened and the tissue lining it was partly necrotic. There was an erosion in the cartilage of the lower surface of the carpus 1 c. m. in diameter, with a similar erosion on the corresponding articular surface of the metacarpus. All other joints in the left foreleg were apparently normal.

In the occipito-atloid articulation, the capsule was greatly thickened, the inner part covered with fibrin pressing on the cord. The other vertebral articulations appeared normal.

There was a congestion of the arachnoid and the pia; also some congestion of the brain. About 5 c. c. of a clear, colorless fluid was found in the lateral ventricles. The choroid plexus was congested.

Smears of the greenish white material from the joints showed the presence of many bacteria, mostly single cocci, some in pairs and also in short chains. There were also shreds of coagulated



Fig. I



Fig. III



Fig. II



Fig. IV

material, many polymorphonuclear leucocytes and also many large cells with round or oval nuclei, probably endothelial cells. Some of the latter, as well as some polymorphs contained cocci. Histologically the masses by which the joint capsules were thickened were composed of granulation tissue on the outside, next to the synovial membrane, and fibrin containing a few leucocytes on the inside, toward the joint cavity.

Conclusions:—It is evident that we have here a case of a polyarthritis caused by some organism in the blood apparently streptococcus. (Dr. E. M. Pickens found a streptococcus in cultures made from this greenish white material.) It seemed to begin by a reddening of the bone under the articular cartilage or a rarefying osteitis, and a fibrinous synovitis; both processes seem to be of about the same age. The fibrin in this case was being replaced by granulation tissue. The calf was but ten weeks old, hence notwithstanding the presence of the granulation tissue, it seems to be an acute case. From anatomical and histological appearances, it seems clearly to be what is described by the term "Erosive Osteo-Arthritis."

ACKNOWLEDGMENT

I gratefully acknowledge my indebtedness to Drs. S. H. Burnett and V. A. Moore, whose thorough supervision made this work possible. Thanks are also due to Dr. E. M. Pickens for bacteriological work and to Dr. B. F. Kingsbury for the use of the photomicrographic apparatus.

EXPLANATION OF PLATE.

- Fig. I. Distal end of left femur. $\frac{3}{5}$ natural size.
 - a. Normal articular cartilage.
 - b. Area of erosions on internal lip of trochlea.
 - c. Fibrinous masses in the joint cavity.
 - d. Papillary masses extending from the capsule.
 - e. Thickened capsule.
- Fig. II. Head of right femur. $\frac{3}{5}$ natural size.
 - a. Eroded surface.
 - b. Rim of remaining cartilage.
 - c. Thickened capsule.
 - d. Fibrinous masses in the articular cavity.
- Fig. III. An erosion of the left patella $\times 50$.
 - a. Articular cartilage nearly normal.
 - b. Articular cartilage degenerated.
 - c. Articular cartilage necrotic.
 - d. Area where the cartilage is gone, its place is taken by fibrin and leucocytes.
 - e. Newly formed capillaries surrounded by fibroblasts (granulation tissue).
 - f. Areas of leucocytes.
 - g. Undissolved bone.
- Fig. IV. Contents of lacuna $\times 185$.
 - a. Leucocytes.
 - b. Giant cells.
 - c. Fat droplets.
 - d. Undissolved bone.
 - e. Fibrin.
 - f. Bone lamellae.
 - g. Osteo-clasts.

SARCOMA OF THE BRAIN IN A DOG.*

By A. SLAWSON, D.V.M., New York, N. Y.

This is a very brief report of an interesting case which came under my observation and is brought to your notice with the hope that you will relate some of your experiences of diseases affecting the central nervous system.

The patient, a female Boston terrier, 9 years old, was overcome with a sudden seizure of convulsions, characterized by few limb movements but with a marked bending back of the head and neck. This seizure passed off in a few minutes, apparently leaving the animal as well as ever. Within a week a similar attack came on, the opisthotonus being more pronounced; and recovering from this in a little while, the animal again seemed quite well, except for a weakness in the limbs which caused her to stagger at times. Within three days another attack overtook the dog, and from then on for six weeks, convulsions, all of a similar nature, racked the animal, sometimes one every other day, sometimes three or four a day. Periods of coma and muscle tremors followed the later attacks. The hind limbs were drawn up closely to the body (Kernig's sign) most of the time. The temperature was usually around 102 degrees and the respiration was slightly labored. The dog ate with a varying appetite and could walk at times, even until the last.

There was no early history of trauma or convulsions of any kind. The symptoms shown by this dog were identical with those exhibited in certain forms of cerebro-spinal meningitis in people known as posterior base meningitis. The more I studied these types of cases, the more I became convinced that hydrops of the fourth ventricle existed in the case before me and that the trouble was at this point and in the medulla, with a probable meningitis here.

In an endeavor to relieve the pressure at the medulla, a lumbar puncture was made, which proved dry, no fluid being obtainable. This led me to believe that adhesions of the meninges existed at the medulla. Since the puncture proved futile and the seeming pressure could not be relieved the owner was advised to have the dog destroyed, to which he finally reluctantly consented.

An autopsy was held, all the thoracic and abdominal viscera being in a normal state. The brain and spinal cord were removed intact and a longitudinal and a few cross-sections were

*Read before the Veterinary Medical Association of New York City, June, 1915.

made through each hemisphere of the cerebrum and two cross-sections and one longitudinal through the cerebellum. Cross-sections were made through the medulla and other parts of the cord to the lumbar region. The only microscopical lesion was found in the cerebrum, in the posterior third of the left hemisphere, just below the surface of the cortex. At this point the cortex was soft and an irregularly formed cavity, about $\frac{1}{2}$ inch in diameter was seen surrounded by necrotic brain tissue. The first thought was of an abscess, but no pus was present, and upon making a microscopical examination of a section through the tissue at this point, Dr. Jas. Ewing of the Cornell Medical College pronounced the growth a round-celled sarcoma, with necrosis. Microscopic examination of the cord disclosed no infiltration into the central canal or abnormal change in the cord itself or adhesions of the meninges.

It seems from this case report that symptoms of pressure at the medulla may also be brought about by diseases of the cerebrum and that an animal may live for some time with a cavity in the brain substance. In my opinion, the dog could have lived at least three weeks longer. It is regrettable that this brain was not preserved. It was thrown away through a mistake at the laboratory, and therefore it has not been possible to give a more accurate description of the exact location of the tumour.

SPINDLE-CELLED SARCOMA ON INSIDE OF CHEEK OF COLLIE DOG.

By CRITTENDEN Ross, D.V.M., New York, N. Y.

Answering a call to see a collie dog on June 3 that was reported unable to eat, we found, upon examination, imbedded in the cheek a large tumorous growth which appeared necrotic and gave off a very offensive odor. At the owner's request the patient was treated but the client warned of the seriousness of the condition. Four days later, at the solicitation of the owner, the patient was operated upon. All efforts were used to remove the entire growth and both upper and lower moxillae were curetted. In the center of the growth was found a small tooth, resembling a deciduous incisor. Samples of this mass were sent to a local laboratory, also to Dr. B. F. Kaupp, of West Raleigh, N. C. The former laboratory was quite busy at the time, and as the material was sent in the fresh state, only a report from gross examination was made, which stated that the material did not ap-

pear as if from a malignant growth, and that once thoroughly removed would not be apt to reappear. As a result of this report a second operation was performed, as the growth had returned in ten days. Shortly after this operation sufficient time had elapsed to receive word from Dr. Kaupp, which bore the information that the growth was a large spindle-celled sarcoma; but time was allowed to see the outcome before destroying the patient, which resulted in the return of the growth after a period of only eighteen days. The patient was then destroyed.

A PREMATURE BIRTH.*

By A. L. DANFORTH, D.V.M., Watertown, N. Y.

An interesting case came to my notice while at Goshen which I thought might be of interest to the readers of the *Cornell Veterinarian*. It was interesting to me in that I had never heard of so young a foetus being born and still live. It occurred on the farm of one of our clients and we were called by this owner asking if we cared to come and see it. The man keeps a careful record of his breeding stock and there is no reason whatever for doubting the authenticity of the facts given.

Grade Holstein, six years old, third calf. Freshened March 29, 1913, going full time, was bred again on May 15, 1913, and on October 22, 1913, gave birth to a live bull calf weighing 19 pounds. The cow having been bred 160 days previously. The calf was apparently normal in every respect except for size. He was kept until February 11, 1914, and sold, at which time he weighed 140 pounds. He was by a three-year-old registered Holstein Bull.

I am wondering if there are on record any younger calves which have lived.

PRACTITIONERS SHORT COURSE IN VETERINARY MEDICINE: Too late for publication in our August issue, we received an announcement of a practitioners short course at the Division of Veterinary Medicine of the Iowa State College, August 16 to 21. We trust that a large number of veterinarians have found it possible to take advantage of this course in that most excellent institution.

* Reprinted from the *Cornell Veterinarian*, July, 1915.

ABSTRACTS FROM EXCHANGES.

ENGLISH REVIEW.

By Prof. A. LIAUTARD, M.D., V.M.

A PECULIAR SHELL WOUND [*Lieut. E. H. Wyly, A.V.C.*]—A mare was injured by a shell. The anus itself was completely excised, as perfectly as if it had been done by the surgeon's knife; whilst the tail, vagina and buttocks were absolutely uninjured.

The animal must have been in the act of defecating when hit by the piece of shell. There was no hemorrhage. The animal lived for four days and eventually was shot. The piece of shell was found located about the region of the mammary gland.
—(*Veter. Jour.*)

COURSE OF A SHRAPNEL BULLET [*By the same*]—At Ypres, while sheltering from aeroplane sight by the side of a wood, a shrapnel shell burst among the trees, killed four horses and wounded ten others. One had a bullet wound on the near side of the neck; it entered and passed through the other side as far as the skin and then became reflected downwards over the shoulder and along the thorax, having its course clearly demonstrated by a mark like the weal produced by the cut of a whip. By palpation, the bullet was traced as far as the fourteenth or fifteenth rib, where it was felt rolling about sub-cutaneously and was removed with a simple incision. Recovery followed rapidly.—(*Ibidem.*)

THREE CASES TREATED BY AUTOGENOUS VACCINE [*J. F. D. Tutt, M.R.C.V.S.*]—A bay mare suffering with chronic uterine discharge. Microbes detected, streptococcus and club-shaped bacillus. An autogenous vaccine, each cubic centimeter of which contained 6,000,000,000 organisms, made up of 3,000,000,000 of each of the above named organisms. Injections were made and repeated at intervals of five to seven days. Latterly the dose was increased to 12,000,000,000 organisms. Result recovery.

2—*Grey mare* had a suppurating fetlock. Micro-organisms present were *Bacillus coli*, *Streptococcus albus*, *Streptococcus brevis* and an elongated diplococcus. Autogenous vaccine was prepared each cubic centimeter of which contained 8,000,000,000 organism in all, made up of 2,000,000,000 of each. Result, discharge gradually reduced and stopped.

3—*Shire Stallion*—Suppurative fetlock. Micro-organisms present: *Streptococcus brevis*, *Bacillus coli*, *Staphylococcus albus*. Autogenous vaccine prepared made of 5,000,000,000 of each of these and recovery followed after nine days of treatment.—(*Veter. Journ.*)

CONGENITAL ABNORMAL KIDNEY IN AN UNBORN FOAL [*Henry Thompson, M.R.C.V.S.*]—Aged Clydesdale mare foaling, needed assistance. She is lying down with her head, forelegs and shoulder of the foetus pulled well outside and ropes attached at which eight men are pulling but are unable to deliver the mare. The chest of the foal was then cut through the diaphragm and a flow of fluid escaped with no further progress. The abdominal and thoracic viscerae were then extracted, but no better result in the delivery. On exploring the abdominal cavity there was then found two large tumours, one of which was tapped, allowing a quantity of fluid escape, but even then the delivery could not be accomplished. The two tumours were finally cut away and then the foetus came out of its own accord. The tumours proved to be an enlarged cystic kidney and weighed 26 pounds.—(*Veter. Record.*)

SPASM OF THE OESOPHAGUS [*T. I. Alexander, M.C.R.V.S.*]—Mare is reported choking. She is in great distress, has had terrific fits of coughing and then salivates very abundantly. Her nostrils are soiled with greenish discharge and she constantly makes efforts to swallow, curls her tail to the off side, crouches and makes attempts to lay down. Spasmodic movements of oesophagus are plainly observed and the left jugular furrow has a swollen appearance. Attempts to drench her with oil having failed, thick compresses of flannel moistened in boiling water are applied on the left side of the neck and in about ten minutes the spasm gradually subsided and stopped. All bad symptoms disappeared little by little and the mare was left to herself with prescription of a dose of calomel and a careful diet for a few days.—(*Veter. News.*)

A LARGE SALIVARY CALCULUS [*C. Brown, G.M.V.C.*]—Aged Australian gelding had a growth as big as a pigeon's egg on the outside of the lower jaw. It has been growing. It was removed and proved to be a calculus weighing 7½ ounces. The operation was simple and recovery followed without any trouble after about one month.—(*Veter. Record.*)

PNEUMO-THORAX WITH SEPTIC PLEURISY IN A BULL [G. F. Marais, B.A., B.Sc., M.R.C.V.S.]—Three-year-old shorthorn bull has been gored and has a wound three inches long over the ninth rib, which was broken about eight inches from the spine. Air enters the thorax. The wound is full of dead flies and blue-bottles. The wound is enlarged, thoroughly washed with sublimate solution, painted with tincture of iodine, sutured and covered with a bandage which goes all round the body. The animal did well, but was turned loose too early, when his temperature rose to 106 degrees and lots of matter squirted out of the wound. There was septic pleurisy well marked. Notwithstanding careful disinfection and rigid treatment the animal grew worse. Irrigation of the right side of the thorax was decided upon. "When the animal was cast a lot of stinking matter flew out of the chest. With a horse-sickness inoculation outfit half a bucket full of solution of sublimate (1 in 2,000) was pumped into the chest. Then the animal turned on its back, when most of the solution escaped and the remainder was sucked out with the outfit reversed." The wound was then cleaned, iodined, coated with carbolic oil and closed with pitch and lead plaster. Gradually the condition improved and recovery was completed in six weeks.—(*Veter. Record.*)

PERI-NEPHRITIC ABSCESS [W. B.]—A bay gelding had developed strangles and had recovered after the strangles abscess had been evacuated. Several weeks after the horse presented a large swelling on the inside of the off side. As it was fluctuating, it was opened and a very large quantity of pus escaped. The cavity was washed with solution of perchloride of hydrogen, and the next day with tincture of iodine. The cavity gradually healed, but the horse began to lose condition, grew thin and his appetite fell off. Then the discharge of pus returned from the surgical wound on the inside of the stifle. The wound was re-enlarged, treated again as before, but no progress was made, and as the animal seems to lose condition more and more he was destroyed. At the post mortem, tracing of the external wound on its course, it was found to extend upwards, inside of the limb forwards and upwards in the pelvic cavity, until it gained the under side of the vertebral column, where it could be traced to the right kidney, which was found several times its normal size and when removed exposed a large abscess of the perirenal region, filled with a pint of healthy matter.—(*Veter. Record.*)

OBITUARY.

FRED W. LAW, D.V.M.

After he had saved his brother's wife from drowning in Lake Minnetonka, Minneapolis, on July 5th, Dr. Fred W. Law was stricken with heart disease while still in the water and died without regaining consciousness. Dr. Law had gone to the assistance of his brother's wife when she called for help, she having ventured some distance from the other members of the party. Her rescuer was a good swimmer, but the physicians who worked over him for several hours in a vain attempt to revive him said that death was due to heart disease, superinduced by excitement and exertion.

Dr. Law was born at Fountain Green, Ill., in 1885, the son of a practicing physician, now of Galesburg, Ill. In 1904 he graduated from Park College, Parkville, Mo. He then attended Iowa State College, graduating from the Veterinary Department. While at Ames he was prominent in athletics. He was captain of the 1908 football team and played left tackle. He was also active on the cinder track and in the basketball cage.

Subsequent to graduation he practiced in Ottumwa, Iowa and Winona, Minn. He then gave up private practice to act as field veterinarian for the Minnesota State Live Stock Sanitary Board, which position he held at the time of his death. He was first vice-president of the Minnesota State Veterinary Medical Association.

H. D. PAXSON, M.D.V.

Dr. H. D. Paxson died in Chicago early in July. Dr. Paxson, who had charge of the foot and mouth disease work for the State of Illinois, was also a member of the faculty of the McKillip Veterinary College. The doctor will be sorely missed by the state as well as by the veterinary school, in connection with both of which he was doing excellent work. Dr. Paxson was a native of Pennsylvania, his home having been in Westchester, that state. Part of his professional career was spent in Fort Worth, Texas, but in more recent years he had lived in Chicago, doing work at the stock yards and teaching at the McKillip Veterinary College. Dr. Paxson was a member of the American Veterinary Medical Association, and his death will cause sadness to his many friends throughout the country.

SOCIETY MEETINGS.

NORTH CAROLINA VETERINARY MEDICAL ASSOCIATION.

The fourteenth annual meeting of the above association was held in Asheville June 22, 23, 1915. The attendance of veterinarians from all sections of the state was good. Two visiting veterinarians from Virginia were present.

The first day was used in giving examinations to a number of recent graduate veterinarians, most of whom will locate in the state for the practice of their profession.

The second day's work began by the meeting being called to order by President Dr. A. C. Jones. In the absence of Mayor J. E. Rankin, Judge Cox, of the City Court, made the address of welcome. He gave the association a hearty welcome and expressed pleasure that Asheville had the privilege of entertaining the members of this organization at this time.

Dr. A. C. Jones delivered the president's address and at the same time thanked the city of Asheville for the hearty welcome extended by Judge Cox. Dr. Jones gave a retrospective and prospective view of the North Carolina Veterinary Medical Association, referring to cattle tick eradication, serum therapy, sanitary science, hog cholera, interstate quarantine regulations and municipal work.

A very interesting "*History and Growth of the Veterinary Profession in North Carolina*," was given by L. F. Koonce, of Raleigh. He showed that the veterinarians of to-day must be trained for the work which they have undertaken. Dr. A. C. Yow, of Henderson, spoke of "*The Duties of a Veterinarian in His Community*," emphasizing the importance of this part of the veterinarian's duty and the value which a member of the profession may be to the town, county or state in which he is located.

A paper by Dr. W. J. Hartman, of Bozeman, Mont., entitled "*Some Montana Experiences With Foot and Mouth Disease*," was read by the secretary. Dr. Hartman gave some very interesting accounts of the work done in his territory in controlling some serious outbreaks of this dreaded disease.

Dr. R. B. Jones, of Wadesboro, discussed "*Hog Cholera*" and gave some of his experiences in treating it. "*Hog Cholera and the Efforts of the United States Department of Agriculture to Control It*," was an interesting subject presented by Dr. F. D.

Owen, of Raleigh. He gave a very full account of the investigations first made to find the cause of this disease referring especially to work done along this line in the middle west. He also discussed methods of treatment and gave account of his work being done in North Carolina.

Dr. L. J. Herring discussed "*Disease Transmission*," in a very able manner, showing how diseases are most likely to be transmitted by common carriers and contact with diseased carcasses that have not had proper disposition.

A discussion of "*Sterility in Domestic Animals*," by Dr. G. A. Robert of the North Carolina Experiment Station, was an effort to show that possibly each class of animals, including man, has its specific venereal disease. It is doubtful if any disease causes as great losses in the state as this venereal disease in dairy cattle alone. Observation and investigation by us in North Carolina and by many others in other states and countries indicate that in dairy cattle particularly, this disease is nearly if not universally distributed. Its symptoms are recognized by granular vaginitis, abortion (premature birth, still birth, full term weaklings), metritis with or without retained afterbirth, and all but very few cases of temporary and often permanent sterility. The term contagious abortion has been very inappropriate, for by no means do all affected cows abort. Out of several thousand heads of cattle examined in the state, not a single cow or heifer over a few months old has been found free from granular vaginitis. Few herds have been found free from abortions, a less number free from retained afterbirth, and scarcely any herd free from temporary or permanent sterility. Since the fact that sterility is the most serious, its correction will be sought in the rectal manipulation of the ovaries and in vaginal antiseptic douches, which if accomplishing the desired results will likewise lessen the abortions and retained afterbirths. In our experience and that of many others, carbolic acid and methylene blue given per os or hypodermically cannot possibly influence the *B. abortus* organism. However, had we not used some check animals when trying out the carbolic acid and methylene blue treatments, we should have accredited them with some marvelous results. To us, if our premises prove correct, one of the most perplexing of the breeders' troubles can be accounted for, though may not be corrected until some effective biological product is produced.

At this time an invitation was extended to the members of the North Carolina Veterinary Medical Association by Drs. Hill and Roberts, of the Agriculture and Mechanical College, to spend

a week at the college next January reviewing on animal husbandry, especially feeding, judging animals, anatomy, physiology, testing and handling milk or any other subjects or work wanted. Instruction, use of college supplies and dormitory room, so far as possible, will be free.

Dr. M. M. Leonard, local veterinarian, had several interesting clinical subjects for observation, discussion and treatment.

Many of the veterinarians availed themselves of the opportunity to drive through the Biltmore estate and were greatly pleased with the trip. At eight p. m., in the Langren Hotel, many of the veterinarians enjoyed a sumptuous banquet, after which Dr. J. G. Ferneyhough, state veterinarian of Virginia, made an address. Dr. Ferneyhough dealt with the importance of the work of the members of the organization and some of the methods of solving the problems with which they are confronted in the performance of their duties.

Dr. J. P. Spoon, of Burlington, discussed "*A Debt We Owe*," in which he showed the opportunity the veterinarian has for creating an atmosphere for a more humane treatment of our humble and worthy servants, the dumb animal—not only during surgical operations, but mainly on the roads and streets where they are most abused by rough handling, ill-fitting harness, improper use of the whip, lack of wholesome feed, water, etc.

"*Relations of the Veterinarian to the Municipal Health Department*" was ably discussed by Mr. L. M. McCormick, city bacteriologist of Asheville.

In business session, the following men were elected to membership in the North Carolina Veterinary Medical Association. Dr. W. H. Reinhardt, Dr. B. C. Tally, Dr. R. S. Sugg, Dr. W. C. Caldwell, Dr. J. I. Neal, Dr. J. C. Freeman, Dr. H. B. Nixon and Dr. M. M. Leonard. Dr. F. D. Owen was elected to honorary membership in the association.

Election of officers for another year resulted as follows: Dr. J. I. Handley, President, Charlotte, N. C.; Dr. R. R. Reinhardt, First Vice-President, Lincolnton, N. C.; Dr. C. L. Crews, Second Vice-President, Statesville, N. C.; Dr. J. P. Spoon, Secretary and Treasurer, Burlington, N. C.

The State Veterinary Examining Board asked the association to recommend to Governor Craig for re-appointment, Dr. T. B. Carroll, of Wilmington, as member of the State Veterinary Examining Board for a period of five years.

The meeting adjourned to meet at Wrightsville Beach in June, 1916.

J. P. SPOON,
Secretary.

THE GIFT OF A MAN.

AN ADDRESS BEFORE THE VIRGINIA STATE VETERINARY MEDICAL ASSOCIATION, AT OCEAN VIEW, VIRGINIA, JULY 8, 1915,
BY W. HORACE HOSKINS, OF PHILADELPHIA, PA.

In every clime and nation history repeats the story of great men who have come forth in times of great need to solve problems of country and world wide importance.

This grand old Dominion State, rich in her gifts of great men for our much loved country's growth and development, enriched a nation's independence by a Patrick Henry.

Our own calling, for so many years the most lowly and neglected profession, shunned by all save the most ignorant and superstitious that the field of medicine has ever loaned a shroud to hide the same, even from those of greater intelligence and advancement and which to this day pay homage to the ignorant pretender and boastful charlatan in many parts of our fair land.

Into the field of veterinary medicine at the dawn of its service for a veterinary sanitary control system came this good man to whom our country, the world and our own profession owes a debt of gratitude it can never repay.

Unselfishly and devotedly he gave of his splendidly equipped mind, his untiring energies, his ever self-control from being carried away with new theories, but never for a moment hesitating to apply the best he knew, that the one great aim of public service might be fully conserved. He sought no vain glory for his achievements, but the greater opportunities of service seem to open up a broader vision of greater usefulness and greater things to accomplish and so he lived daily, filling the rôle of a great public director of veterinary control work, better than any other man that I have known could have done, time, circumstances and political environment considered.

May I not invoke to-day in your minds the spirit of peace while this hellish war embroils Europe and more than half of the thickly populated portions of the earth.

What will be the vain glories of the triumphs of those who win great battles and destroy untold treasures that centuries have produced and which modern times, hopes and conditions will never restore. How much more beautiful to contemplate, how much sweeter to cherish, how much dearer to mankind, the triumphs of peace this good man achieved for his profession, for service, for the physical wealth of our nation and for mankind as a whole. What a contrast between those who build and those

who destroy, those who add to the world's suffering and those who contribute to its relief, those who add to mankind's burdens and those who lift them from their shoulders, those who destroy the moral fabric that makes civilization safe, and those who turn back the moral forces of the world and take man again toward the brute creation. How eagerly then should we be to portray this good man's life work, perpetuate it in the hearts of those we love, teach it to those who will follow our footsteps and enrich mankind by the achievements of peace, that the fellowship of man may grow and flourish to the uttermost ends of the earth.

May I not appeal here and now to you loyal men of my profession in this state of far-famed hospitality, kindness and good will. Among you who are so deeply interested and who have shown so unselfish a spirit in the public service of our profession, you who are ever trying in your state veterinary police work, in the splendid work at Blacksburg, where agriculture is so richly fostered and animal industry enhanced. This state so rich in the men she has given to our Federal veterinary police work, Virginia, so exultingly triumphant in the finest bred and most perfectly developed specimen of animal kind for pleasure, for commercial service and least and lastly for profit.

May I not invoke your most lavish giving, your deepest personal sacrifice that your part shall be wholly in keeping with the splendid traditions of your state, in the erection of a suitable living, working testimonial to this good man, that his name may be enshrined in the memory of the living and perpetuated in the hearts of your children and your children's children.

A man, kindly in manner, gentle in demeanor, modest in all his achievements, magnanimous in spirit, every ready to forgive and forget the shortcomings of others he came among us and imbued in his own mind that he could pass this way but once in his splendid career, he never seemed to forget the exemplification of a true fellowship for those with whom he mingled and he has left with those whose special privilege it was to have had his friendship, only the sweetest memories of a well-lived career and the admiration for a true man.

His whole life spent in an official atmosphere as one of those attached to the Treasury Cattle Commission in the early 80's and later in the same period called to organize the Bureau of Animal Industry as a department under the Secretary of Agriculture, charged with the creation of a bureau not to exceed twenty persons in all, he saw this department grow until it employed more than a thousand members of our profession and to have its work

sub-divided under almost a dozen sections, each filling some important rôle in the wonderful development of animal industry, whose stupendous growth made it possible in 1914 for one single firm to do a business of more than one hundred and forty-four millions of dollars in animals and animal food products.

He tasted of the bitterness of official life and felt the sting of a nation's impulsive chief ruler's ingratitude by the most unjust dismissal from official place, after more than a score of years of public service unequaled in the Department of Agriculture and unexcelled in any other Federal department when measured by a service that made every man, woman and child of our land his debtor and laid the commercial interests of our country under a debt it can never repay.

Such in brief is the gift of a man to a nation, a short story of the life of Dr. D. E. Salmon.

Let us as a token of our esteem, with loving devotion and tender admiration rear for the future profession a fitting monument in the fields of higher veterinary education that will ever testify to his worth and great achievements.

May we not deem it a high privilege to perpetuate his memory along the lines of higher education and advancement to which he so unselfishly and magnanimously devoted his entire life.

May we not rear with affectionate appreciation a monument not in stone or marble or precious metal, but a living fund, from which will yearly flow forth a provided privilege for some worthy son in obtaining a veterinary education, or shall provide that a fellowship in advanced work shall add its wealth to the higher growth of our profession in intellectual advancement and add thereby richer safeguards to the wellbeing of all our people.

VETERINARY MEDICAL ASSOCIATION OF NEW YORK CITY.

(*June Meeting.*)

The regular monthly meeting of this association was called to order by the president, Doctor H. D. Gill, in the lecture room of the New York American Veterinary College at 8.45 p. m. The minutes of the May meeting were read and approved.

Doctor R. W. Gannett, of Brooklyn, N. Y., then read a very interesting paper entitled "*Horny Tumors*" and also exhibited several very fine specimens of keratoma. In this paper the doctor explained his method of removing these horny tumors by remov-

ing two elliptical portions of the horn below the coronet and above the plantar surface of the foot, leaving a strong band of horn between. Found that this is a better method than that of making the straight incision following the course of the tumor. This paper was discussed by a number of the members and visitors present and different methods of treatment were advocated. Doctor P. Burns said that this condition often occurred in his practice and generally yields to soaking and poulticing. Also stated that a great number of horses have this condition but do not go lame.

Doctor McKinney cited a case in his own driving horse which he treated with the actual cautery and then plugged with a capsule of bichloride of mercury, which sloughed out the horny growth with good results.

Doctor Caulfield agreed with Doctor Burns in the treatment of this condition by soaking and poulticing.

The question was asked: "What is the nature of these horny growths?" And Doctor Clayton said that it is perverted horn tissue which might be termed a cross between true horn substance and podophyllous tissue. Doctor Gannett said that in his opinion it is horn produced by the laminae and not by the coronary band.

Doctor Gannett was tendered a vote of thanks for his interesting and instructive paper.

Doctor Geo. A. Goubeaud then read an interesting paper entitled "*The Application of Iodine to Lacerated and Contused Wounds before Suturing.*" In this article the doctor cited a number of cases in which this method of using iodine had given remarkable results in wound treatment. A large number of the members told of the different uses to which this valuable drug may be put.

Doctor Cochran stated that he uses iodine and turpentine in nail punctures of the feet.

Doctor H. D. Gill stated that good results are obtained in scouring by administering one-half dram doses three times daily.

Doctor Clayton stated that he uses it very extensively in general practice.

Doctor Chase stated that he combines iodine and glycerine, which extends the action for a longer period.

Doctor Miller and Doctor McLaughlin both stated that they use iodine before and after in spaying and other operations.

Doctor Gannett said that he trusts iodine to prevent tetanus.

Doctor Miller mentioned the fact that in dogs bitten by other dogs a large number of sloughing wounds are found, and in the

case of a dog being bitten by a number of dogs, apparently dies from a toxemia, and not from the severity of the wounds.

Doctor Chase also mentioned the carbolic acid treatment of tetanus, and said he uses a 20 per cent. solution of carbolic and glycerine, giving two drams every two hours subcutaneously. Has had some good results following this treatment.

Doctor Goubeaud was tendered a hearty vote of thanks for his excellent paper.

The following delegates were then appointed to represent this association at the annual meeting of the A. V. M. A. and the New York State Veterinary Medical Society:

To the A. V. M. A. meeting at Oakland, California; Doctors D. W. Cochran, Robt. W. Ellis, E. B. Ackerman and Robt. S. MacKellar.

To the meeting of the New York State Veterinary Medical Society at Ithaca; Doctors W. J. McKinney, C. E. Clayton and E. B. Ackerman.

After some discussion, the secretary was, on motion duly carried, requested to read the opinion of the Attorney General on the right of a veterinarian to practice who had been convicted of a felony.

The secretary was, on motion duly seconded and carried, instructed to write the State Board of Regents asking that the license of Julius Cavazzi to practice veterinary medicine and surgery be revoked.

No further business appearing the meeting adjourned.

ROBT. S. MACKELLAR, *Secretary.*

WISCONSIN VETERINARY MEDICAL ASSOCIATION.

The first semi-annual meeting of the above association convened at the Municipal Building, Chippewa Falls, Wis., Wednesday, July 14th, 1915.

The meeting was called to order by Vice-President L. J. O'Reilley, due to the absence of our President, J. W. Beckwith, who was unable to attend on account of sickness in his family.

Roll call showed the largest attendance of any summer meeting ever held in our state.

The minutes of the last annual meeting, which was held at Madison last January, at which time the amalgamation of the two former associations was brought about by incorporating under a new name and charter, was read and approved.

After listening to several committee reports and transaction of other routine business, twenty-six new members reported on favorably by the board of censors, were taken into the association collectively.

We had the pleasure of having Doctors G. B. McKillip, E. L. Quitman and A. H. Baker, all of Chicago, with us during the entire meeting. The association showed its appreciation of their presence by electing them all honorary members of the association.

The afternoon was taken up by the reading of papers and discussions on the following subjects:

Swine-Plague and Contagious Bronchial Pneumonia, Dr. J. D. Lee; *Parturient-Paresis*, Dr. C. W. Brown; *Hare Lip and Cleft Palate in the Dog*, Dr. R. G. Owen; *Efficiency of the Veterinarian*, Dr. A. H. Baker; *Therapeutic Criticisms*, Dr. E. L. Quitman; *Technic of the Roaring Operation in Standing Position*, Dr. G. B. McKillip.

All brought out many prolonged discussions that proved to be very instructive to all present.

The evening session was open to the ladies and general public, who had the pleasure of listening to papers and discussions on real live subjects, as follows:

Co-operation, from the breeders' and stock raisers' point of view, presented by Mr. L. P. Martiny, Treasurer of the Wisconsin Live Stock Breeders' Association, who discussed the subject very thoroughly, and was extended a hearty vote of thanks.

General Sanitation, which was taken up by Dr. O. H. Eliason, brought out many new ideas, especially from a professional standpoint. He also touched on the Foot and Mouth situation in the state at the present time.

The future of Serum Treatment in the hands of professional men was presented by Mr. F. V. Hawkins, who defended the subject very creditably. It was greatly appreciated by the members of the association, and demanded a vote of thanks.

With the general opinion of all members present that the day had been a grand success, both scientifically and socially, adjournment was taken until the next morning at 8.30 a. m. to meet at Dr. L. G. Hart's Infirmary, where an abundance of clinical material was in waiting.

Thursday, July 15th, 1915, 8.30 a. m.

The forenoon was spent in the performance of several major operations by different members of the association, including a Roarer, Ridgling, Scrotal and Ventral Hernias, Poll-Evil and the spaying of heifers.

The clinic was conducted very creditably to the operators and our profession in general, with many compliments from members of our sister profession, who chanced to be with us.

The afternoon session consisted of some spirited discussions on subjects drawn from a question box.

This concluded the work of the first session of the new association, which was voted a decided success, and the meeting adjourned to meet at Madison, Wis., in January, 1916.

W. A. WOLCOTT, *Secretary.*

WASHINGTON STATE VETERINARY MEDICAL ASSOCIATION.

The seventh annual meeting of the Washington State Veterinary Medical Association was held in North Yakima, Wash., on the 17th and 18th of June, 1915.

This was the best meeting our Association has ever held. It was the aim of those promoting it to make it intensely practical. The literary part of it was made very short, though there were some good papers read. The clinic was made the most important feature, as it has been found to be the most interesting feature to the class of men who attend our meetings.

A large amount of clinic material had been assembled by Drs. Prior and Jones. The cases were assigned by Dr. Prior so that each man had one operation to do and had to assist one other man to do an operation. A part of the time on the afternoon of the second day there were as many as three operations under way at the same time.

It may be of interest to some of our eastern friends who think of us as being out in the "wild and woolly" to know that in Yakima County alone there are one hundred breeders of registered live stock. During an automobile trip among the breeders we saw the bull for which we were told Mr. E. B. Marks recently paid \$10,000.

The next year's meeting will be in the city of Seattle. The officers elected for the coming year are: President, Dr. Robert Prior, North Yakima; Vice-President, Dr. E. E. Wegner, Pullman; Secretary-Treasurer, Dr. Carl Cozier, Bellingham.

Very truly yours,

CARL COZIER, *Secretary.*

ASHTABULA, LAKE AND GEAUGA VETERINARY MEDICAL ASSOCIATION.

The above association met at Painesville, O., July 18, 1915.

After an interesting dental operation performed by Drs. Greenwood and Springer, the meeting was called to order by President McCollister; minutes of the previous meeting read and approved, followed by a lively discussion of "*Quacks and Quackery*," the result of which will be the enforcement of the laws enacted by our last General Assembly, whereby we hope this portion of Northeastern Ohio will be freed from those insignificant pests, the unqualified, unlicensed, law-breaking "quacks."

Paper was then presented by Dr. T. L. McCollister, subject "*General Anesthesia*," which was very practical and helpful. Paper by Dr. R. A. Greenwood, subject "*The Significance of the Fever Complex in the Cow*." In this paper the writer tried to bring out the relative importance of the fever changes in the cow in comparison to that of the other domesticated animals of which we are called upon to treat, with the hope of stirring up something in the mind of the practitioner, the importance of gathering together some practical data on the bovine specie.

The meeting then adjourned to next meet at Dr. McCollister's.

R. A. GREENWOOD, *Secretary and Treasurer.*

WESTERN NEW YORK VETERINARY MEDICAL ASSOCIATION.

On the afternoon of June 24th the Western New York Veterinary Medical Association held its annual meeting at the Hotel Statler, Buffalo, and elected the following officers and directors for the ensuing year:

President, Dr. E. L. Volgenau, Buffalo, N. Y.; Vice-President, Dr. J. L. Wilder, Akron, N. Y.; Secretary Treasurer, Dr. F. F. Fehr, Buffalo, N. Y.; Directors, Dr. John Wende, Buffalo, N. Y.; Dr. H. S. Wende, Tonawanda, N. Y.; Dr. Geo. R. Chase, Attica, N. Y.; Dr. Edward Rafter, Hamburg, N. Y.; Dr. F. E. McClelland, Buffalo, N. Y.; Dr. Anderson Crowforth, Lockport, N. Y.

This society is only in its infancy, but bids fair to be one of the foremost of the state, as the members are showing a great deal of enthusiasm both by their attendance and activity at the meetings.

Among other proceedings they discussed at length and passed resolutions to prohibit and prosecute the illegal practice of veterinary medicine in this end of the state.

The next semi-annual meeting will be held the second week in December.

F. F. FEHR, *Secretary-Treasurer.*

SOUTHERN TIER VETERINARY MEDICAL ASSOCIATION.

The second annual meeting of the above association was held in Binghamton, N. Y., July 2, 1915.

During the forenoon a very interesting clinic was held at Dr. A. W. Baker's Hospital at 23 Ferry street. A number of interesting cases were presented. Among these were: Bay mare, tumor on the clitoris, operated on by Drs. J. N. Frost and W. E. Muldoon of Ithaca. Bay gelding, low neurectomy, operators, Drs. Frost and Muldoon, animal standing. A double string halt operation was also successfully performed by the above surgeons. Sorrel colt, castrated, standing by Dr. E. F. Voris of Owego. Black stallion four years old, suspected cryptorchid. Animal thrown, Dr. W. L. Williams, Ithaca, made an examination. It was found that one testicle had been removed as the stump of cord was obtained. The other testicle was in its normal position. This was removed.

At 2.30 p. m. Pres. A. W. Baker called the meeting to order at Hotel Bennett. After a short address by Pres. Baker routine business was transacted.

A committee was appointed consisting of Drs. Vorhis, Frost and Udall to draw up suitable resolutions on the death of Dr. W. H. Stevenson.

Dr. V. A. Moore and Dr. James Law were elected to honorary membership in the association.

The papers presented were: *Peculiar Cases in Cattle*, Dr. L. Juliand, Greene, N. Y. Discussed by Drs. Udall, Stone, Axtell and Battin.

The New Veterinary Law, Dr. G. T. Stone, Sidney, N. Y. Discussed by Drs. Moore and Faust.

Colics, Dr. G. W. Wheeler, Deposit, N. Y. Discussed by Drs. Faust, Vorhis, Stone, Udall, Milks, Axtell, Sturgis, Juliand and Battin.

The following were elected to membership: Dr. G. T. Stone,

Sidney, N. Y.; Dr. W. L. Sturgis, Norwich, N. Y.; Dr. W. S. Eggleston, New Berlin, N. Y.

The officers chosen for the coming year were: President, Dr. E. F. Vorhis, Owego, N. Y.; Vice-President, Dr. C. D. Pearce, Binghamton, N. Y.; Secretary and Treasurer, Dr. C. P. Fitch, Ithaca, N. Y.

Upon the invitation of Dr. Battin, it was voted to hold the next meeting at Elmira.

C. P. FITCH, *Secretary.*

DR. MIX APPOINTED ON MICHIGAN STATE BOARD: On August 13th, Dr. C. C. Mix, of Battle Creek, Michigan, was appointed a member of the State Board of Veterinary Examiners by Governor Ferris, to succeed Dr. O. J. Howard—resigned. This corrects a statement made in the Jackson, Mich., *Press*, and reproduced in our August issue, naming Dr. Ward E. Giltner as the appointee.

DR. WHITE MARRIED: Dr. Logan A. White, class of 1914—Division of Veterinary Medicine, Iowa State College, was married on August 11th to Miss Mae Trindle of Sioux Rapids, Iowa, where Dr. White is practising his chosen profession. The REVIEW congratulates the young couple, especially the doctor, whose horizon will become broadened by this important step and his importance in his community materially increased; even though the announcement of his marriage emphasizes the loneliness of his less fortunate classmates. Especially those distant from their native state.

MEETING OF IDAHO ASSOCIATION OF VETERINARY GRADUATES postponed from latter part of August as originally planned, until February (the annual meeting). This change was made because the original dates would conflict with those of the A. V. M. A.

The meeting when it is held will be a most important one, and it is the duty of every graduate veterinarian in the state to be present to discuss plans for relieving the stockmen of the state of the disaster resulting from the appointment of a non-graduate veterinarian to the important position of state veterinarian; to say nothing of lifting the cloud that hangs over the profession in that state from the injection of politics into professional appointments.

NEWS AND ITEMS.

VETERINARY COLLEGE MOVES: The problems of the New York State Veterinary College, formerly the New York-American Veterinary College, may have been solved. At any rate, measures have been decided upon which should add greatly to the efficiency of this branch of the University.

All the work of the school will now be done in the Medical College building, where the chemical, pathological, bacteriological and histological laboratories have long been utilized by the veterinary students. A plot of land adjacent to the Medical College and owned by the University was some time ago set aside for the Veterinary College. A portion of the necessary funds for a suitable building have been promised, and construction will be undertaken whenever a sufficient amount is received.

Another change contemplated is the lengthening of the course from three to four years and the general stiffening up of the requirements. Besides the facilities of the Medical College, the school will probably be able to use the animal hospitals near at hand.

No money has ever been appropriated by New York State for the maintenance of the college, although in the spring of 1913 the school was made a state institution on a par with the other state veterinary college at Cornell University, and although it was provided in the act at that time that free scholarships should be given to a student from each assembly district in the state. It is the hope of the Faculty of the College and of the University Council that by placing the school on a firmer foundation and raising the standard of its instruction, they may attract to it the interest of the state government.

The Veterinary College never has been very large. The registration last year was seventeen. Since the retirement of Dr. A. Liautard, the father of veterinary medicine in this country and the founder and moving spirit of the American Veterinary College, the attendance in the combined schools has somewhat fallen off. Only the devotion and unselfish interest of the Faculty, inspired by Dr. Liautard's example, have kept the school going and maintained its high standard of instruction. Their principal reward has been the consciousness of work done.

Friends of the College believe that it has before it a great opportunity. Dr. Gill points out that veterinary medicine offers one of the most attractive fields open to young men to-day. The vast increase within recent years of the knowledge of animal diseases and their relation to the health of human beings has created a demand for inspectors and expert investigators that it

is at present impossible to fill. No difficulty at all is experienced in placing veterinary graduates in good positions. Particularly are men of large calibre and good preliminary training—preferably a college degree—needed as veterinarians.

New York City, furthermore, is the logical location for a veterinary school. The astonishing amount of farm and dairy work conducted within or close to the city limits offers an unlimited practical field. The food inspection, the zoological collections, the museums, the libraries—all the resources of a great city—are here at the command of a college of veterinary surgery. For all of these reasons, the friends of the New York State Veterinary College at New York University have faith in the future of the institution.—(*New York University Calender*, July 21, 1915.)

STANDARDS FOR STABLES.—No stable shall be maintained in the City of New York without a permit therefor issued by the Board of Health or otherwise than in accordance with the terms of said permit and with the Regulations of said Board. The provisions of this section shall apply to the owner, lessee, tenant, occupant or person in charge of such stable.

No permit will be granted to maintain a stable in a tenement house; or on the same lot or premises with a tenement house located within the fire limits of the City of New York as described in the Building Code of said City. A permit may, however, be granted to maintain a stable on the same lot or premises with the tenement house located outside the said fire limits, provided such stable is not within twenty feet of any building used for living purposes and is maintained so as not to create a nuisance.

Every stable shall be adequately lighted by natural or artificial means.

Every stable shall be adequately ventilated to the external air by natural or mechanical means. Windows or other openings shall be so constructed and arranged as to be readily opened, and shall be of a size sufficient to provide one and one-half square feet of area for every horse or other animal occupying such stable. In all cellar stables and buildings used as stables for the first time on or after July 1, 1915, 800 cubic feet of air space shall be provided for each horse or other animal accommodated therein.

Every stable shall be provided with a proper and adequate water supply. All water supplied fixtures shall be properly trapped and sewer or cesspool connected.

Every stable shall be connected with a public sewer or, if there be no public sewer in the street to which the stable can be connected, a properly constructed water-tight cesspool located outside of the stable shall be provided.

The ceiling of every building used as a stable for the first time after July 1, 1915, shall be at least 8 feet in height measured from the surface of the floor to the ceiling.

The floors of stable shall be water-tight and preferably of non-absorbent material. The floors of stalls shall be of concrete or other water-tight, non-absorbent material so graded and drained as to discharge all liquid matter into properly trapped sewer or cesspool connected valley drains. All floor racks provided in stalls shall be removable.

Walls, ceilings, exposed woodwork, floors, stalls and valley drains of stables shall be maintained in a clean condition at all times, and the walls, ceilings and exposed woodwork whitewashed whenever required by the Department of Health.

No manure vault, pit or bin shall be allowed upon premises used for stabling purposes, except upon premises used for farming in unimproved sections of the City. All manure and stable refuse shall be kept within the stable and removed daily, or if not removed daily shall be pressed into bales, barrels or boxes, adequately screened or otherwise protected or covered so that flies cannot have access thereto, or otherwise treated as approved by the Department of Health. All such manure or stable refuse so baled, barrelled, boxed or treated shall be removed from the stable at least twice weekly.

The loading of manure for removal shall be done within the stable without causing a nuisance.

No straw, hay or other substance which has been used as bedding for animals shall be placed or dried upon any street, sidewalk or roof of any building.

The stable yard shall be maintained in a clean condition, and the surface thereof so graded as to prevent the accumulation of liquids thereon.

Every stable shall be maintained so as not to cause a nuisance or permit of the breeding of flies.

DR. BETHELL GOES TO COLLEGE STATION, TEXAS: We read in a recent issue of the San Antonio, Texas, *Express* of the appointment as assistant in the veterinary department of the Agricultural and Mechanical College, at College Station, Texas, of Dr. Bailey Bethell, of Greenville, who was recently graduated from the veterinary school of Ohio State University.

